



INDOOR GARDENING

BY

EBEN E. REXFORD







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INDOOR GARDENING

GARDENING BOOKS

By EBENE. REXFORD

The Home Garden

THIS book is intended for the use of those who have a little piece of land upon which they would like to grow vegetables and small fruits, but whose knowledge how to go to work in the right way, and what to attempt growing, is limited, because of lack of experience. It contains no theories. It aims to give simply and clearly such information as the writer has gathered from his own experience in gardening, by which he believes others can bring about equally satisfactory results.

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Flowers are lovely; love is flower-like;
Friendship is a sheltering tree

Coleridge

INDOOR GARDENING

BY
EBEN E. REXFORD

WITH THIRTY-THREE ILLUSTRATIONS



PHILADELPHIA & LONDON
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FOREWORD



HIS book is not a scientific treatise on plant-culture. Nor is it the work of the professional plant-grower. It aims to give, in plain and simple terms, such information as the amateur gardener stands in need of. This information, as set down in this book, the writer has gained by personal work among flowers, for his own pleasure. He has been successful in their culture, and his success has come from following the methods described herein. There may be better ones. He has written the record of his own experience for the benefit of other flower-lovers, believing that it will be found practical, sensible, and helpful.

Some of the advice contained in the earlier chapters of the book may not seem quite clear to the reader who has had no experience in plant-culture. But when he or she undertakes to grow plants, and these chapters are read over in connection with actual work

FOREWORD

among them, the advice given will be readily understood. Advice of any kind, in the abstract, is seldom clear to the reader, but when it is put into practice the puzzling things will make themselves plain. That will be so in this case the writer has good reason to believe.

Much of the information contained in this book has been gained by the writer while connected with prominent periodicals as editor of their floricultural departments. While acting in this capacity thousands of letters have come to him yearly, and these letters have told him what the amateur gardener most wants to know. They have put him closely in touch with the class for which this book has been written, and he believes it will "fill a long-felt want," on this account. In this hope he sends it out to all who love flowers.

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I. SOIL FOR POT PLANTS



ANY persons who love flowers have been prevented from attempting the culture of plants in the house because they have felt themselves unable to satisfactorily decide the question of soil. They have been told that each kind of plant adapted to culture indoors requires a soil of peculiar make-up, and that it cannot be grown well unless just the kind of soil it prefers is given; in other words, that plants are so arbitrary in their demands that they must have everything to suit them or they will sulkily refuse to respond to their owner's kindness. This is a mistake, as every amateur floriculturist will find out after a little. Most plants, like many persons, will endeavor to adapt themselves to conditions not entirely satisfactory, or to their liking, if their owner is willing to do all he or she can to remove obstacles in the way, which is only another way of saying that they will meet you half-

way if you show a disposition to do the fair thing by them. Of course plants that have to make compromises with conditions cannot be expected to do themselves the justice they would under more favorable circumstances, but they often surprise us by the way in which they respond to the best treatment we can give them, even if it falls short, in many respects, of being what they would like. I believe that most persons who grow plants will agree with me that they seem to have an almost human ability to appreciate kindness and that they repay it by putting aside many of their personal preferences in a desire to please those who love them. In every community you will find persons who have the reputation of possessing a "knack" for growing plants satisfactorily. "Anything will grow for them," the neighbors will tell you. But this "knack" will be found to consist almost entirely in the care and attention these persons give their plants, out of their friendship for them. They do their best for their flowers, and they, in turn are ready to return the favor by making the best of existing conditions, and doing all possible for them to do under the circumstances. It is a belief of mine that

POT PLANTS

no person can grow any plant successfully unless he or she has a real friendship for it. This sentimental view the matter-of-fact reader will doubtless laugh at, and explain that it isn't because of the existence of such a feeling that the plant does so well, but simply because we take pains to do everything possible for the plant's welfare. This may be true, from his standpoint, but the very fact that we do these things proves the existence of that which prompts us to such action.

In most books on floriculture we are told that the basis of good soil for pot-plants is garden-loam, varied by adding leaf-mold, manure, and sand. There is no good reason why the term "garden-loam" should be used in this connection, for loam from the garden is no better than any loam of good quality obtainable elsewhere. Leaf-mold is desirable, because it represents the finest quality of vegetable plant-food, but when we consider that probably not one in a hundred—possibly in a thousand—of the persons who attempt to grow plants are so situated that they can obtain it, it seems hardly consistent to advise its use. There is really no necessity for using it, since a substitute almost as valuable can be secured

with very little trouble. This substitute consists of material that can be found in road-side, field, or pasture-lot. Turn over a square of sod, and you will find that immediately beneath the sward the soil is full of a multitude of tiny roots. Shave these away with the spade, cutting close to the crown of the grass, and you have a mass of light, spongy soil. When the roots comprising the largest part of it have decayed, it will be almost as rich in vegetable matter as soil procured from the woods. This, mixed with loam, will furnish excellent nutriment to nearly every plant adapted to culture in the house. To it should be added sand—clear, coarse, gritty sand—to facilitate drainage and secure the friability which will prevent the soil from becoming heavy and compact, as it very often does, under repeated applications of water, unless means are taken to avoid this unfavorable condition.

The proportions in which to combine loam, vegetable matter, and sand should vary, because the root-systems of all plants are not alike, those having very fine, thread-like roots, like the *Heliotrope*, *Primula Obconica*, and some of the Ferns, will do best in a soil

FANCY CALADIUMS





POT PLANTS

wherein vegetable matter is largely in excess, only enough loam being used to give it "body." Plants with larger roots require more loam and less vegetable matter. But sand should be used in about the same quantity, whether vegetable matter or loam predominates, as its office is largely that of a purifier and sweetener of the soil; therefore all plants are benefited by it. On no account should it be left out of a compost for house-plants if it is possible to procure it. *Any* soil with enough sand in it to make it friable will retain only a sufficient amount of water to meet the requirement of the plant growing in it; therefore, if drainage is what it ought to be, all danger from over-watering will be avoided. A soil without sand often becomes so compact and heavy that water is retained until it sours, and such a condition is sure to result in a diseased plant, sooner or later.

I am aware that many amateur gardeners prefer to have formulas given for the preparation of potting-soil, being fearful of making mistakes if they trust to their own judgment, and for their benefit I would advise combining the various elements entering into it in the following proportions:

Loam, three parts,
Vegetable matter, one part,
Sand, one part,
Mix well together.

When properly mixed, a soil made as above directed will be light and mellow, and will be found adapted to the needs of all ordinary plants, or, in other words, all plants whose roots are moderately strong. Before potting a new plant it is well to examine its root-system. If it is found to have delicate roots, add more vegetable matter. If its roots are *very* fine, use still more—making it the principal part of the soil, in fact. You will soon learn how to vary proportions to suit your plants if you make a practice of familiarizing yourself with their root-peculiarities, as every amateur gardener should. The person who achieves success in growing house-plants does so, largely, by studying the peculiarities of them as a mother does those of her children.

Some plants have but few roots, and these large, strong ones. As a general thing, such plants do not like a light, open soil. One of loam containing considerable clay, with vegetable matter left out, will suit them best. It

POT PLANTS

will therefore be seen that, while it is impossible to give exact proportions, for the soils in which plants having different kinds of roots are grown, an examination of these roots will enable us to adapt the soil to their peculiar requirements in a manner that will give very satisfactory results. My readers have no doubt all read of the painter who mixed his pigments with brains. Mix your potting-soil in the same way, and you will have few failures to charge it with.

A little intelligent observation will enable you to detect any mistakes that may be made, and these can easily be corrected by making such changes in the composition of the compost as seem to be called for by the plants you are growing. But do not expect to find out all these things unless you form the habit of watching your plants. Whenever a change is made, *of any kind*, observe the result carefully, and in a short time gardening will become an exact science with you rather than a series of problematic experiments. The successful gardener always has his eyes open when at work among his plants, and the consequence is that he is always "finding out things."

I have made no mention of the use of ferti-

SOIL FOR

lizers in the preparation of potting-soil because I do not think a young, small plant requires a compost richer than the one already advised. But old plants, or plants that have outgrown the limits of small pots, may need more nutriment in the soil, and this can be supplied in two ways: By adding manure to the mixture, or by the application of fertilizers to the soil, in liquid or solid form. The best manure to make use of is that from the cow-yard, old enough to be readily broken under the hoe. Pulverizing this, and mixing it with the soil in the proportion of about one-fourth part, will give a compost quite rich enough for any plant. But, like leaf-mold, this kind of manure is seldom obtainable away from country neighborhoods; therefore a good substitute is advised. There are many plant-foods on the market, but I know of nothing better than fine bone-meal. This can be bought in any place where agricultural supplies are sold. Most florists can furnish it, though no doubt many of them will advise some pet "food" which will admit of greater profits. Mix the bone-meal with your potting-soil, if you conclude to use it, in the proportion of a teacupful to a half-bushel of the latter. Mix it in

POT PLANTS

thoroughly, taking especial pains to pulverize all lumps that may be found. Should your plants not make as vigorous a growth as you think they ought, meal can be worked in about their roots, at any time, when they are not dormant. I prefer bone-meal to most of the liquid fertilizers sold, because it is more permanent in its effect, and seems to contain more of the real elements of plant-growth, while there is no danger of reaction after its application, as there almost always is when most so-called "foods" are used. Many of these are really nothing but stimulants, temporary in effect, therefore sure to be followed with disastrous results.

A very rich soil is not advisable for young plants, because it has a tendency to force a rapid growth, which one should always strive to avoid. A steady, sturdy, healthy growth is to be aimed at, and one should be satisfied with that.

Many writers advise baking potting-soil, to kill larvæ in it. *Never* do this. Baking will rob it of all its best qualities, and make it almost worthless.

Care should be taken to have the sand you use *pure* sand—not a mixture of sand and clay

SOIL FOR POT PLANTS

or some other soil, which will become muddy under the application of water. The more grit there is in the sand the better.

Some advise sifting the soil. I would not do this, for it removes the fine roots which when they decay add much to its nutritive qualities. If your compost is mixed well, sifting will not be found necessary.

II. POTS AND SAUCERS



WHILE the ordinary clay pot is doubtless as satisfactory as anything that can be used to grow plants in, all things considered, I would not say the severe things against glazed pots that many writers on floriculture do. These have been condemned as positively harmful but I have failed to find them so. The injurious effects charged to them I believe were due to other causes. In the greenhouse, where the air is kept constantly moist, a pot porous enough to allow moisture to evaporate freely from the soil is, no doubt, the proper thing to use. But in the living-room, where the air is more or less dry, I consider a glazed pot not at all objectionable, since its glazing interferes with the too rapid evaporation that would naturally take place in a room pretty sure to be overheated. We often see fine plants growing in old tin cans, noseless pitchers, and other articles of pottery

glazed outside and in, and I am of the opinion that they do better in them, in the dwelling, than they would in unglazed pots, because the moisture of the soil is retained much longer, therefore there is less danger of injury from lack of attention. The ordinary unglazed pot is certainly not an object of beauty, at its best. It often becomes discolored and slimy from exudation of moisture, and when this takes place it is a menace to the plant in it, as this slime may contain the germs of a disease that can be communicated to the plant through its roots. If good drainage is provided, there is never any danger of injury by overwatering. This being the case, I consider that it matters very little about the porosity of the vessel containing the plant. If the surface of the soil is kept open air will be admitted to the roots in sufficient quantities to meet the requirements of the plants, and in a soil from which all surplus water drains away readily, and into which enough air enters to keep it sweet, any plant can be grown satisfactorily, under favorable conditions.

Not all plants require pots of the same shape. Some send their roots down deep into the soil without spreading much at the sur-



FERNS AND ASPARAGUS



SAUCERS

face, or below. These should be given deep pots. Others throw out a root-system which never goes far below the surface. For these shallow pots are best. Study the characteristics of your plant in this respect, and endeavor to give them pots suited to their peculiarities.

Hanging plants in the living-room certainly do best in glazed pots, because the temperature in which they are suspended is always several degrees higher than that at the window-sill, and consequently evaporation takes place much more rapidly. Were porous pots to be used, from whose sides moisture could pass off, as well as from the surface of the soil, it would be necessary to apply water much oftener than is the case where evaporation can take place from the surface only.

The fact is, it matters much less what kind of a vessel a plant is grown in than most persons imagine. I have seen as fine plants growing in an old wooden box as I ever saw in anything. It is the soil, and the care given, that counts most of all. Therefore if you dislike the appearance of the ordinary pot, use glazed ones—use anything that happens to be convenient—but be sure to provide what

POTS AND

you do use with facilities for proper drainage. This is of the utmost importance. Overlook it and no matter what kind of a pot your plant is in, the soil will soon sour because of stagnant water in it. In such cases, *you* will be responsible for the trouble,—not your glazed *pot*. Proper drainage is the safety-valve upon which the grower of plants in house or greenhouse must depend for protection against most of the ills originating at their roots.

The best clay pots are of a light cream color. The red ones soon crumble, like brick, under the continued effect of moisture.

There is a combined pot and saucer on the market which would be an improvement over the old pot and its separate saucer if better facilities for drainage were provided. As it is, there are but two small holes at the junction of pot and saucer, and these, being on the sides, soon become clogged, and surplus water is dammed back, the consequence of which is extremely unfortunate for your plants. If these holes were larger, they would allow water to escape as freely as from the ordinary pot with a hole in its bottom, but, for some unexplainable reason, the makers refuse to make this improvement, and, as a result, the

SAUCERS

combined pot and saucer is not much used. The advantage of a pot always provided with a saucer, and of a saucer not easily broken, will be readily understood by those who have had some experience with the detached saucer.

There has, of late, been introduced a saucer of fibre-ware. This is wood-pulp compressed and prepared by some peculiar process that makes it practically indestructible. It is perfectly impervious to the action of water. These saucers are very light, quite attractive in appearance, and can be used on the most finely polished furniture without the least danger of scratching it, so smoothly are they finished. As soon as the merits of this article become known, it will, I am confident, come into general use. It is to be hoped that we may soon have pots of the same material.

Stands of fibre-ware for large plants in tubs are already in extensive use. These are really large saucers, fitted with casters, which make it an easy matter to move plants too heavy to be lifted about by one person. All who own large specimens of Oleander, Palm, or other plants requiring tubs or large pots, ought to provide themselves with stands of this kind. Being raised above the floor by

POTS AND SAUCERS

their casters, the carpet or rug is protected from dampness or the creasing of heavy plant-tubs. This, in itself, will prove a weighty argument with the woman who does not like to have her floors or their covering disfigured, and the ease with which large plants can be moved about will readily convince any one of their great value.

III. DRAINAGE



F there is any one thing about amateur floriculture more earnestly advocated and urged by writers on plant-growing than drainage, and more systematically ignored by the parties

to whom the advice is given, I do not know what it is.

It seems difficult to convince amateur gardeners that drainage is a matter of prime importance. "A whim," some of them call it. Others speak of it as a "pet theory." Now it is neither a whim nor a theory.

On many farms one finds low places where not much but bushes and semi-aquatic plants grow. Farmers clear off these places, and attempt to make grass grow there, but their attempts generally result in failure. Something is wrong with the soil.

But when the farmer under-drains these marshy places by the use of tile, which allows the excess water to drain out of the soil above,

DRAINAGE

and run away, speedily a great change takes place. The land that was sour and soggy because always saturated with water, soon becomes workable, and, after a little it will grow good crops. Why this change? The explanation is very simple: Water, which had been retained until it had made the soil unfit for use, passes off, and air enters to fill the vacancy left by the water, and the cold, heavy, sour soil is warmer, lightened, and sweetened. "Reclaiming the land" is the term the farmer uses for this process, and it is a good one, for really the land which was wholly useless because it had been neglected *is* reclaimed and often made more valuable than other portions of the farm.

Now drainage in plant-growing is to plants in pots precisely what under-draining is to the swampy places on the farm. By it all excess water is allowed to settle to the bottom of the pot from the soil above, only enough being retained by it to meet the immediate needs of the plant growing in it. A soil so drained will remain sweet and in a healthy condition indefinitely, and plants will flourish in it as satisfactorily as in the garden beds. But stop up the hole in the bottom of the pot,

DRAINAGE

and allow surplus water to collect until it floods the soil above, and straightway you have trouble with your plants. None but aquatics or semi-aquatics can long survive their roots in mud.

I have explained the principle of drainage at some length because I want to impress upon the mind of the reader the absolute necessity of giving careful attention to this matter if he or she desires to grow good plants. Every pot more than four inches across, and less than six, ought to have an inch of drainage below the soil in it, and pots larger than six inches, and from that size to ten inches should be provided with an inch and a half or two inches of it.

This material may be of any substance that is not readily affected by water. Broken pottery, brick, gravel, charcoal—all these are good. Break them into pieces about the size of a chestnut. Place some of the larger pieces about the hole in the bottom of the pot in such a manner that they will neither fall into it, or allow others to, and fill in about them with smaller pieces to the necessary depth. Some advise placing something flat over the hole in the pot, but I do not, for if any of the

DRAINAGE

soil washes down it will settle and close the opening about the piece, and the first thing you know your soil will be like mud, because there is no chance for the water to escape. Always plan to keep this hole free from obstructions. It is a good practice to turn bottom side up, occasionally, and make sure, by the finger, or a stick, that this hole is not clogged up.

In order to prevent the soil from washing down and filling the crevices in the drainage, a layer of sphagnum moss should be spread over it before any soil is put into the pot. This is important. If moss can not be obtained, use a thin piece of sod, grass-side down. Moss, however, is much preferable, as it does not easily decay under the action of water.

IV

POTTING AND REPOTTING



AID a woman to me, not long since, "While I'm convinced there's a knack to flower-growing that not all of us can fully attain, I'm convinced there's a *special* knack to transplanting and repotting plants. I try to be very careful when I do this kind of work, but somehow I generally fail at it. My plants seem to resent my interference with them, no matter how much they require the attention, and for weeks they sulk, and refuse to grow, while those of my neighbor keep right on growing as if nothing had happened to them. And she don't bother with her plants, in potting or repotting them, half as much as I do."

In that last sentence this woman unconsciously explained why she failed and her neighbor succeeded. She "bothered" too much. In other words she was over careful. In plant-growing there are extremes. One is

POTTING AND

neglect, the other a care that degenerates into fussiness. As many plants die of one as of the other.

The fussy gardener pets and coddles her plants precisely as she does her children, and the result is about the same in each case. Instead of giving them a reasonable amount of intelligent care, and trusting them to follow out the instincts of Nature in doing the rest for themselves, she carries out her petting-coddling policy until they have lost that sturdy, self-reliant quality which characterizes all healthy development. This she does out of mistaken ideas of kindness, of course, but the result is often quite as disastrous as that of intentional injury. Plants, just as persons, like to have some responsibilities put upon them, and do not care to be treated as if they were wholly incapable of doing something for themselves.

“But,” may be asked, “what do you mean by petting and coddling one’s plants? What is fussiness, from a floricultural standpoint?”

It is made up of many things: Turning a plant out of its pot to examine its roots when it is doing as well as could be expected; applying a little of this, that, or the other

REPORTING

fertilizer when none is needed—experimenting with anything and everything one's friends may make mention of as having special value in bringing about or hastening the development of plants—using the dregs of tea or coffee as a mulch under conditions that make any kind of mulch an injury rather than a benefit—shifting plants to large pots when the pots they have been growing in are quite large enough for all their needs—applying water at irregular times and in varying quantities. In brief, it is giving a treatment entirely out of harmony with the teachings of Nature, while the very essence of successful plant-culture consists in imitating natural conditions as closely as possible. Give your plants good soil, good light, plenty of water and fresh air, and then let them take care of themselves, to a great degree. They will do it if you give them a chance, but can not do it if you keep fussing over them, and doing things they do not want done.

This digression—of which I hope every reader will make careful note—has led away from the subject that heads the chapter. I set out to give instructions about potting plants, and this I will now attempt to do.

POTTING AND

I consider it a very easy matter to pot or repot a plant successfully, if one goes at it in the right way. I do not believe in turning a plant out of its old pot and shaking all the soil from its roots, because no plant likes to have its roots interfered with. I simply slip the plant out of its old pot (this is easily done by inverting the pot and tapping it against something hard and firm while one hand is spread over the soil with the plant between the fingers) and put it into a new one a size or two larger, and fill in about it with fresh soil, which is made firm by crowding it down with the fingers, or a blunt stick, if the fingers are not long enough to reach to the bottom of the pot, or by the application of enough water to thoroughly settle the soil. In this way the roots of the plant are not disturbed *in the least*. The feeders among them, which will be seen all over the outside of the ball of earth as it comes from the old pot, will be brought into direct contact with the fresh soil, and development will go on without interruption. But if all, or most, of the soil is shaken from the roots, as some writers advise, the plant receives a check from which it will take some time to recover, and a check of any



PALMS AND FERNS

REPORTING

kind is always to be avoided, because it means interrupted development. If a plant turned out of an old pot shows a solid network of roots about the mass of earth containing it, it may be well to set it in a tub of water for a short time, to loosen the interlaced root-fibers, but beyond this I would not go. Too great interference with the roots of plants explains frequent failures in potting and repotting.

Old plants become root-bound. If they have been in the same pot for a long time, and seem inclined to stand still, or cannot be made to grow vigorously by good care, it is well to examine their roots with a view to finding out the cause of the difficulty. Turn the plant out of its pot, by proceeding as advised on a preceding page. If you find the roots matted thickly on the outside of the soil, and many are brown, and some dead, you may be sure that a larger pot is needed. The plant should be repotted at once. Many fine plants are lost or seriously injured by not attending to them at the proper time. In every instance good drainage should be arranged for before the plants go into their new pots.

If new pots are used, they should always

POTTING AND

be soaked for at least twelve hours in a tub containing enough water to entirely cover them. If this is not done, the porous material of which the pot is made will absorb water from the soil, as a sponge does, and your plant may be robbed before you suspect it of the moisture it needs. Pots that have been used should be scrubbed thoroughly with soap and water to free them from all germs of disease, before they are again made use of.

The amateur gardener is often at a loss to decide what size of pot to use in repotting old plants. I would not advise pots more than two sizes larger than the old, in any case, and generally one size larger will afford sufficient room for new roots to spread for a year to come. It is a mistake to think that plants in the window require very large pots. Nowadays we feed our plants largely on foods supplied by fertilizers rather than by the use of fresh earth, therefore smaller pots can be used than were formerly supposed to be necessary to the proper development of a plant.

In transplanting seedlings and cuttings care should be taken to disturb the delicate roots as little as possible. Never touch the roots with the fingers if you can avoid it.

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Make little holes in the soil into which the plants are to go, drop the roots in, and then gently press the earth about them. If the roots become exposed, crumble fine earth about them and shake it into place among them by jarring the pot sharply with the hand. Then water well, and put the plant in a shady place until it has become fully established and begins to show signs of renewed growth. But do not let your shady place be one from which the air is excluded. Newly potted plants require fresh air nearly as much as they do water.

In potting or repotting plants, never *fill* the pot with soil. Leave at least an inch between the surface of the latter and the rim of the pot. If a pot is filled to its rim most of the water you apply will run off before the soil has a chance to absorb much of it. But an inch of space above the surface will allow you to apply the water in sufficient quantity to meet the requirements of the plant, and leave you free to go on with the watering of other plants while it is being absorbed.

Great harm is done by putting small plants into large pots, urging as a reason for so doing the fact that large pots will be needed in time,

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and therefore they might as well be given now, thus saving the labor and trouble of repotting. Small plants cannot make use of the nutriment contained in large quantities of soil, and when we put them in large pots we overfeed them. Their powers of digestibility are not equal to the demand made upon them; consequently a sort of vegetable dyspepsia results which is often fatal, always harmful. It is much better to repot at intervals, as the old pots become filled with roots, than to anticipate the future need of a plant by giving large pots when they are not needed.

I would not advise keeping *old* plants over from year to year. Rather would I advise growing new ones to take the places of those which have outlived their usefulness, or have outgrown the limits that can conveniently be assigned them. We do not always get the most or finest flowers from old plants, or large ones, as some persons have an idea. Young, strong plants are almost invariably more satisfactory in the window-garden than older ones. By the term young, used in this connection, I have reference to plants in the prime of their development. The only class of plants I would advise retaining after hav-

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ing become large is that grown for foliage and for general decorative purposes.

Some amateurs make a practice of repotting all their plants once a year, generally in fall. This is wrong. Repot only such plants as actually need repotting, and do this, always, when the need is discovered, no matter what the period may be. Late potting is advised against because the plant is likely to be in an unsettled condition at the very time when it ought to be perfectly established and ready to go ahead with preparation for winter's work.

V. THE USE OF WATER



THE question of watering plants is a perplexing one to most amateurs. They want to do this part of the work of plant-growing properly, but nowhere can they find any rules to tell them the precise amount of water to give, and the time to give it. They talk the matter over with their flower-loving friends, and derive no satisfaction because, like themselves, their friends are without rules that have anything positive about them. Each one, therefore, becomes a law unto herself. Some solve the problem satisfactorily, because they bring to its solution good judgment resulting from careful and intelligent observation, while others experiment, and go from one extreme to another, generally to the injury of their plants. These are the persons who *like* plants, but never take the trouble to study them in order to familiarize themselves with their requirements. Nine times

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out of ten their collections contain no really good plants, some very poor ones, and the majority will be of that indifferent quality which makes one wonder what pleasure their owners get from them. I do not wish to be understood as saying that faulty watering is wholly responsible for this condition of things, but it plays an important part in it.

For mixed collections of plants no definite rules can be laid down as regards watering because the plants of which they are made up differ so greatly in their requirements. One may like a very moist soil. Another may need but little moisture at its roots. The only thing to do is to study your plants until you understand them in all respects. Then you will not be at a loss as to what treatment to give them. Keep your eyes open every time you go among them. There will always be something to learn. That's one of the pleasantest things about plant-growing. No one day's experience among them is ever quite the same as another's. It does not take long for the person who really loves her plants to learn the general principles which must govern her in her care for them, and the vexed question of how much or how little water to

apply and when to apply it will soon settle itself with the intelligent amateur who really wants to learn.

The nearest I have ever come to making a rule to govern the watering of plants is this: When the surface of the soil has a *dry look*, apply water. And apply enough to saturate all the soil in the pot. You can make sure about this by giving so much that a little escapes through the hole in the bottom of the pot. Unless this takes place you can never be quite sure that there is not a stratum of dry soil in the pot in which some of the roots of the plant in it will fail to secure the moisture they need. Therefore make it a rule, when applying water, to apply it liberally, keeping in mind the fact that if you have provided proper drainage there is never any danger from over-watering.

Do not water again until the dry look of which I have spoken appears on the surface of the soil. Then repeat the operation as advised above.

It will be understood, from what I have said, that there can be no set time for watering one's plants. Moisture will evaporate more rapidly from small pots than from large ones.

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Much depends upon temperature, which always varies considerably; also upon exposure to fresh air, and winds, both of which help to extract moisture rapidly. In order to be sure that your plants get all the water they need, and get it when they need it, watch them, and let the appearance on the surface soil be the main thing to guide you in this part of the treatment given your plants.

If your plants are all of about the same size, and in the same-size pots, and are of the kinds usually grown in the house, a regular, daily watering may answer all purposes. But it must be readily apparent to any one who gives the matter a little thought that plants in large pots and plants in small ones can not all be given the same treatment. Here is where the good judgment gained by intelligent observation will come in play most effectively. It will be always in demand, all along the line, but more especially as regards the use of water.

The question is often asked: Which is the best, hard or soft water? I have never been able to see any difference.

What should be the temperature of the water is another question we are often called on to answer. I would have it of about the

same temperature as the air in the room containing the plants to which I proposed to apply it. I do not advocate the use of hot water. It weakens the plants to which it is applied. Nature uses no hot water in her gardening operations, and she is the gardener who makes no mistakes.

Those who study their plants will discover that there are times when they do not seem to need as much water as at others. A dormant plant—the plant that is trying to take a rest—will require very little until it starts into active growth again. Then, as this growth increases, more and more water will be called for. You may not be able to tell what amount to give, from the looks of the plant, but the looks of the soil will tell you when to give it, and the elastic rule made mention of on a preceding page will enable you to adjust your treatment to the varying needs of your plants quite satisfactorily.

There are seasons of the year when evaporation takes place slowly, and at such times much less water will be required by one's plants than at others. This is especially the case in fall, when we bring our plants indoors. If, at this period, we were to make a practice



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of watering them daily, and liberally, we would soon drown them out, as they are in no condition to make use of as much water as the soil will hold in suspension. Therefore water sparingly, at such times, and wait for them to begin vigorous growth before using water freely on them.

I am well aware that much of what I have said in this chapter will not be quite clear to many readers, particularly those who have not had much experience in the culture of plants in the house, but it is as plain as it can be made until they come face to face with the perplexities and problems which beset the amateur floriculturist. *Then* a careful reading of this chapter will enable them to more clearly understand the advice I have given, and little by little the difficulties in the way will vanish.

The use of water *on* plants is almost as important as the application of it to their roots, when we attempt to grow them in living-rooms. It is almost impossible to grow good plants there without applying water to their foliage in the form of a spray—"showering" we call it.

Showering answers a two fold purpose. It washes off the dust that clogs the pores of the

leaves, and helps to counteract the weakening influence of a hot, dry air. One should make it a rule to shower her plants at least twice a week. Once a day would be better, for it is impossible to give them too much moisture overhead in the ordinary living-room. Showering also helps to keep down insect enemies, but that will be spoken of fully in another chapter.

Every owner of a collection of house-plants should provide herself with a small, portable spray-pump. With it she can apply water to her plants in the form of a spray as fine as mists, or she can make a genuine shower of it by a simple turn of the nozzle regulating the size and character of the stream. Such a pump is a necessity to the woman who desires to do good work among her plants. Careful manipulation of it will prevent much moisture from reaching any part of the room except that in which the plants stand. In other words, the water can be applied just where it is needed, and there will be slight danger of doing injury to carpets or walls. Sprinkling with whisk-brooms, or applying water with atomizers, as so frequently advised, is of slight benefit.

It is a good plan to give your plants a month-

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ly washing. Take them to the kitchen or bathroom, and drench them thoroughly.

Never fall into the "little and often" habit of applying water. This consists in applying just enough to wet the surface, whenever you happen to think of it. It is a pernicious practice, for the appearance of the surface deceives you into the belief that the soil below is moist, while it may be really dry. You need not expect to grow good plants if you water them according to this method.



VI

THE USE OF FERTILIZERS



ANY amateur gardeners are under the impression that their plants need feeding when they begin to languish, or when they show a disposition to rest, and the first thing they do is to apply a fertilizer of some kind, generally in considerable quantity, on the principle that if a little is good a large amount must be a good deal better. The result is, nine times out of ten, that the plants are injured rather than benefited, because they are not in a condition to make use of a fertilizer. It is not more food that is needed at such times—rather, as little food as possible, in order to give the digestive organs of the plants an opportunity to regain the tone they have lost, to some extent, by overwork, until a sort of general exhaustion has taken place. The application of a rich food, at such a time, may force growth, but it will be an unhealthy one, since it is secured

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at the expense of the plant's vitality, and almost invariably this unnatural growth is followed by a reaction disastrous in the extreme. The effort on the part of the plant to properly digest and assimilate the food increases the trouble precisely as over-eating affects the human stomach when in a weakened condition.

There is one rule regarding the use of fertilizers that no person who would be successful in the culture of plants can afford to overlook, and that is this: Never apply a fertilizer of any kind to a plant that is not growing.

If growth is just beginning, after a period of rest, let the amount of fertilizer used be in proportion to the growth being made. Keep in mind the fact that what is needed is not a rapid development, but a sturdy one, and be satisfied with a healthy growth. Rapid growth almost invariably means a weak one, from which, as has already been said, a reaction may be expected, after a little.

Never *force* a plant.

I am aware that many a reader may say here: "Why doesn't he tell us *just how much* fertilizer to use? How are we to know this?" To which I reply: You must exercise your

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judgment in the matter. Begin with weak applications and observe their effect. If the plant grows well, you are giving enough. As its development increases the plant will be in a condition to make use of larger amounts of food, and you must increase the supply in proportion to the development being made. Just how much this will require is something that no one can determine without seeing the plant. Nothing but personal observation can solve the problem of how much or how little fertilizer to use.

And personal observation only can tell you when to use it. You must learn to rely upon yourself largely in caring for your plants. Keep that in mind, always.

Another reason why definite instruction regarding quantity can not be given is—fertilizers vary in strength, and since there are many kinds on the market, and the writer cannot know what particular kind you propose to make use of, it is impossible for him to say anything about amounts except in general terms. Here is where observation and good judgment must again be made use of. Let me say this, however, keep on the safe side by using small quantities until you have learned

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the effect of whatever fertilizer you make use of. Experiment cautiously, and be always on the lookout for results.

There are, as has been said, a great many fertilizers on the market, advertised as plant-foods in most instances. Great merits are claimed for them, and amateur gardeners who are ambitious to make their plants excel those of their neighbors are tempted to invest in them. Some are really good, and others are positively bad, because, instead of being really *foods* they are simply stimulants. Their use may excite the plant to action, temporarily, but reaction is sure and speedy, because the energies of the plant have been spurred to a degree not warrantable by the vitality of it. Such so-called "foods" and fertilizers ought not to be used. When you read of any advertised to do wonders among the plants in your window, do not give them a trial until you have assured yourself of real value in them, and this can only be done by letting some one else give them a test. If you wait for this, the probabilities are that you will not make use of them, for those who test them seldom feel justified in giving any testimonials in their favor.

"But," some one may say, "how are we to

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guard against frauds? How are we to know the good from the bad?" I reply, make use of such fertilizers as are sold by reliable florists and seedsmen who have established a reputation for honesty and fair dealing that they cannot afford, even if so disposed, to take advantage of a customer's ignorance and palm off upon her a worthless article. Such dealers make a point of handling only the things whose merits they are sure of.

The basis of nearly all our best plant-foods is bone-meal. This can be bought very cheaply and I have found it about as satisfactory as anything I have ever used. It can be mixed with potting-soil, or it can be supplied to a plant at any time by digging it into the soil in such quantities as may seem advisable after we have become somewhat familiar with its effect. When used in this manner it will not be necessary to repeat the application for some time, as it does not immediately give off all its nutritive qualities. The finely ground meal should always be used for pot-plants. (The coarse article is too slow in its operation for such use.) Those who have never used it may safely begin with a teaspoonful to a seven- or eight-inch pot. Watch the result and do not

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apply more until you are sure it is needed. The enthusiastic amateur generally overdoes this matter in his desire to see his or her plants make strong development, and quite often he kills by kindness.

Another most excellent fertilizer is manure from the cow-yard. This is, of course, only available for those living in the country, but those who have facilities for obtaining it need not wish for anything better. If used in dry form it can be mixed with the potting-soil, after being pulverized as finely as possible, or it can be applied as a top dressing to the soil already in the pots. Care should be taken to select that which is so old as to be black and friable. Never use the fresh article. If you care to use it in liquid form put the unpulverized manure in tubs or barrels and pour on enough water to cover. Allow it to soak until you feel quite sure its strength has been extracted. Add enough of this infusion to the water you apply to your plants to give the latter the color of weak tea. This operation can be repeated as often as seems necessary. Such a fertilizer is a safe and satisfactory one if not given in great strength.

You will frequently read about the advis-

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ability of applying oil to the roots of your plants in order to bring about a vigorous growth. Such advice is dangerous. Oil will form a coating over all roots with which it comes in contact, and make it impossible for them to take moisture properly from the soil, as oil and water repel each other. The result of applications of oil will surely be diseased plants.

Sometimes we read that beefsteak will greatly benefit a plant, if applied to its roots. There may be some nutriment in decaying flesh, but not enough to warrant its use as a fertilizer. The probabilities are that it will breed worms to prey upon the delicate roots of the plant to which it is applied. The offensive odor given off by it, as it decays, renders its use objectionable if it had all the merits ascribed to it by those who take stock in whims of this kind.

When plants have been repotted in soil prepared as advised in the chapter on potting-soil, it will not be necessary to use any fertilizer for some time, as there will be as much nutriment in the soil as will be required by the plant for quite a period of growth.

Soapsuds can be made use of when other

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fertilizers are not at hand, with fairly good results, if care is taken to dilute considerably. An application of this kind often acts beneficially when there are worms in the soil.

The old belief that it was absolutely necessary to give a plant a larger pot and fresh soil at least once a year has been largely abandoned since the use of liquid fertilizers has become common. By applying them regularly, in moderate strength, it is possible to keep a plant in the same pot, and same soil, year after year, and this, too, in a healthy condition. If it can be constantly supplied with nutriment, it does not seem to matter very much whether that nutriment comes by way of a soil containing the various elements of plant-life or in the shape of a liquid easily appropriated by the feeding-roots and quickly assimilated by the plant. The food, and not the manner by which it is obtained, is the main thing. The writer has an *Aspidistra*, growing in a twelve-inch pot, which has not been repotted for over eight years. Nor has it been given any fresh soil during that time. Its roots are in a solid mass, and have been in that condition for a long time. It throws up many new leaves yearly, and does not seem

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to suffer in any respect whatever from failure to receive new soil or more root-room. He has also a Fern—an *Adiantum*—which has not been repotted or furnished with fresh soil for several years. Both these plants have been fed with weak applications of liquid manure, and the result has been most satisfactory. The use of fertilizers on old plants does away with a large amount of work by making it unnecessary to repot frequently, and it economizes space, as it makes it possible to grow good-sized plants in smaller pots than it has heretofore been thought safe to use.

At no time should plants treated as mentioned in the preceding paragraph be given *strong* applications of liquid fertilizer. Let it be rather weak, but apply it frequently, and regularly. Too strong an application will be likely to excite a growth which is not desirable on the part of a plant already of good size. The aim should be to give simply enough nutriment to keep the plant in healthy condition.

VII

THE RESTING-SPELL OF PLANTS



ANY—perhaps I would be justified in saying most—mistakes made by amateur gardeners might be avoided if they were to familiarize themselves with the various habits of their plants. One of the most common ones is that of attempting to keep them growing and blooming the year round. This is something that few plants can do, and the few that can do it would be vastly more satisfactory if they were given a resting-spell sometime during the year. The average plant is never able to do itself justice unless allowed to remain dormant two or three months out of the twelve. I am aware that the idea of a plant's resting is often ridiculed as one of the whims to which the enthusiastic gardener is subject, but it is the gardener

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who has just such whims who grows fine plants, and it is the one who ridicules him who is always wondering why her plants don't do better.

Nature allows the plants under her management to rest nearly half the year, and—Nature knows what she is about. A plant that has made vigorous growth and produced large crops of flowers during the season must be given an opportunity to recuperate and store up vitality for another growing and blooming period before it gets down to work again, if you expect it to give satisfaction. This rest it will take if you give it a chance. It will cease to grow. It will probably shed a good many of its old leaves. While it is dormant—resting by standing still—it should be encouraged to make its rest as complete as possible by giving it a treatment that will have no tendency to excite it to action. Use just enough water to keep it from wilting. This will not be much, as the feeding-roots will have temporarily suspended activity. Therefore the need of water will be slight. On no account should any fertilizer be used at this period. Not only does the plant not need it, but it is in a condition that makes it impossible

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for it to make use of it; therefore its application will injure rather than benefit.

Allow the plant to stand still as long as it wants to. It knows, better than we do, when it has rested long enough, and you may be quite sure that it will begin to grow again as soon as it feels equal to the demands that growth will make on it. *Then*—and not till then—should larger quantities of water be given. When active growth sets in it will be safe to apply a fertilizer, but it should be used with great discretion. Begin with small quantities, and increase the amount as development increases.

A plant that has been allowed to rest will have all the vigor of a young plant when it gets down to work again, while a plant that has been spurred to constant action by frequent and copious applications of water and fertilizer never appears at its best because for it there *is* no best. What might have been made its best is frittered away upon an effort to keep it *always* in prime condition, which is impossible.

Not all plants rest at the same time. Those which do most of their work during the winter generally stand still—or should be made to

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do so—in summer. If this is done, they will come to their winter's work strong and sturdy, and so renewed in vital force that they are equal to holding their own with young plants, and in many instances they are much preferable to the latter.

Summer-blooming plants can be allowed to take their rest in winter, generally in the cellar. They can be stored away in November, and left there until the following March with entire safety, if kept quite dry, and frost is not allowed to get at them. As a general thing it will not be necessary to water them more than once or twice during the season, unless the cellar happens to be a very dry one. Then give only enough to moisten the soil. Do not be frightened if some of them lose their foliage. All deciduous plants, out of doors, do that during their resting-spell, and are not harmed by it. Water, in liberal quantities, combined with warmth, will excite growth during the winter, and this is precisely what ought to be avoided. Therefore aim to keep the temperature about your plants in cold storage as low as can be done without incurring any danger from frost, and use but very little water.

VIII. PLANT PROPAGATION



MOST plants adapted to cultivation in the house are propagated by cuttings, by division of the root, or by seed.

Comparatively few, however, are grown as seedlings, as plants from seed can not be depended on to "come true," to use a gardener's term—in other words, to reproduce all the peculiarities of the parent plant.

Probably nine plants out of ten are grown from cuttings. Nearly all plants adapt themselves to this method of propagation.

There are many complaints of failure in rooting cuttings. These failures are nearly always due to one of three things:

1 The cuttings may not be in the right condition.

2 The soil in which they are placed to root may not be of a character calculated to encourage the production of roots.

3 Proper care may not be given.

It requires considerable experience to enable the amateur gardener to decide when the branch of a plant is in just the right condition to make a cutting. It should not be soft and pulpy from recent growth. It should not be so old as to have a hard, tough bark. Writers on this subject tell us that half-ripened wood should be used, meaning by that a branch that is neither young or old—in other words, one in an intermediate stage of development. It is not an easy matter to tell when this half-way stage of development has been reached, by the *looks* of the branch. But if it is given a sharp bend, it will, in the majority of cases, if at the right stage to make a cutting, partially break, but some of its fibers will be elastic enough to stand the strain without breaking. This rule, if rule it can be called, does not apply to all plants, for some have stalks of such a brittle nature, in all periods of development, that they snap readily under ever so slight a bend. These must be judged by a feeling of hardness which indicates maturity.

Immature wood often decays before it has had time to form the callus necessary to the development of roots, while over-ripe seems unable to

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form such a callus. But when the cutting is in proper condition it will generally form roots in a week or ten days, according to the nature of the plant, if all other conditions are favorable.

Cuttings should be about three inches long. All but the two upper leaves should be cut off close to the stalk. These leaves should be left to keep up the circulation in the branch, until roots form. While cuttings will root in almost any kind of soil, I prefer the sand-method to all others. Any shallow box or pan will answer your purpose. Put about two inches of clean, sharp sand in it, and apply water enough to make it moist all through—really *wet*,—but not so much so that water will stand at the bottom. Insert your cuttings in the sand at least half their length. Pinch it firmly about their base. This is all it will be necessary to do, so far as planting is concerned, but constant attention must be given until roots have formed. Care must be taken to keep the sand as evenly moist as possible. If you neglect to apply water until the sand becomes *dry*, the probabilities are that your cuttings are ruined. Therefore look to the cutting-box or pan several times a day, and be sure that it never lacks moisture.

Some plants—like Geraniums and Fuchsias—form roots so readily that cuttings made from them will begin to grow in less than a week from the time they are put into the cutting-box.

Do not be in too great a hurry to remove the rooted cuttings from the sand. Let them get well started to growing before this is done. Then work carefully, for their roots will be extremely delicate, and a little hurried or careless work at this period may spoil everything.

Have the pots into which the young plants are to be put all ready for them, with a hole in the soil to receive them. Then cut about them, in the sand, and lift them out without breaking the soil if possible. This is best done by running a broad-bladed knife under the block of sand in which the young plant stands. Drop it, sand and all, in a hole made in the soil in the pot, and then press the latter firmly about it. Apply a small quantity of water, and put the newly potted plant in a shady place, and leave it there until it has adjusted itself to the new order of things. This it will speedily do.

I have seen some amateurs remove their cuttings from the sand by pulling them up, thus exposing their tender roots, and often

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breaking many of them. Never do this. You can hardly be too careful in handling them.

Cuttings of such plants as have a firm, tough bark, like the Oleander, Lemon, and Ivy, are often rooted in water. A large-mouthed bottle is suspended in a sunny place, and about half filled with water. Into this the cuttings are dropped, and allowed to remain until roots form. More water should be added from time to time as evaporation takes place. Frequently it will be weeks before roots show themselves at the base of the cuttings, but as long as the leaves at the top of the cutting remain fresh there is no cause for discouragement. Hard-wooded plants never form roots as readily as those of a softer character.

Plants which throw up several stalks from a sort of crown can be increased by division of the root. Each piece of root with an "eye," or growing point, attached will make a new plant.

The Calla, Vallotta, Amaryllis, and all plants of bulbous nature can be propagated by means of the little offsets that form about the old roots.

Layering is sometimes resorted to with plants of a hard-wooded nature that fail to

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root under ordinary treatment. Select a shoot sent out from the base of the plant, if possible. About six inches from its junction with the parent plant make a slanting cut halfway through it, from below. Then bend the shoot down in such a manner that it can be inserted, at the place where the cut was made, in the soil close to the rim of the pot. Make it firm and fast by pegs or pins, tying the end of it to a stick, in an upright position. A callus will generally form at the point where the cut was made, and from this, in time, roots will be sent out. While roots are forming the shoot will be receiving sustenance from the parent plant, as the cut made in it will only partially shut off the supply. Do not sever the connection between the shoot and the old plant until you are sure it has roots of its own. This you can determine by an examination of the soil at the place where the cut in the shoot was made.

IX. PRUNING AND TRAINING



FEW amateur gardeners give much attention to the pruning and training of their plants while they are small. Here is where they make a serious mistake. Both should begin while the plant is tractable, and both should continue, as the plant develops, until it has practically completed its growth, if a plant grown in the house can ever be said to do that. A plant that has been neglected in these respects, when in the formative period of its existence, and allowed to grow to suit itself until it has become of considerable size, can seldom be made to take on a symmetrical shape by any amount of after attention. The time to prune and train is while the plant is developing. It should be as pleasing in general appearance while small as after it has attained good size. The wise gardener will aim to make his or her plants attractive in shape from the start.

Most plants will send out branches where

none are needed. These should be promptly removed. We cannot afford to have the vitality of our plants expended on the production of unnecessary growth. Check this tendency as soon as discovered, and, by so doing, throw the strength of the plant into that portion of it which is to be more or less permanent.

If a plant, or any branch of it, exhibits no tendency to produce side-branches, and these are desired, nip off the end of it. This, as a general thing, will cause branches to start along the stalk below. If one nipping does not produce the desired effect, nip again, and keep on doing so until you have as many branches as you think necessary. Patient persistence, in this respect, will almost always conquer the most stubborn plants.

Nipping off the top of a plant when it is small causes it to develop several branches near its base, in most instances. Therefore, by checking the upward growth of a plant when small, you force it to take on a bushy, shrub-like form. This form will be found most satisfactory for the average house-plant.

If you prefer a tree form for your plant, allow but one stalk to grow until it has reached the height where you would like to have it

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form a head, before you do anything to interfere with its growth upward. But remove, promptly, all branches that start along the stalk. When the plant is as tall as you care to have it, nip off its top. Branches will generally start in many places below, but allow none except those nearest the top to grow. These are to form the foundation for the head of your little tree. There should be several of these in order to secure most satisfactory results. When they have grown to be four or five inches long, nip off *their* ends. This will cause other branches to start near the extremity of the main stalk, or along their own length, and in this way a thick, bushy head can be developed. But constant attention must be given. Some branches will be inclined to get the start of others, and if they are allowed to do this they will appropriate more than their share of nutriment, and the smaller, but no less important, ones will suffer in consequence. Watch your plant, and prune as needed all through its periods of development, doing the work promptly and persistently.

I said that I consider most plants most effective when trained in bush form. Some

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sorts, however, take more kindly to the standard or tree form. But not all can be trained in either of these forms, as you may elect, because their natural habits of growth may be contrary to these systems of training. *Know your plant*, and train it after the fashion to which it seems most adaptable,—the form most in harmony with its general characteristics.

Some plants will require support almost from the start. These are kinds of slender habit, like most varieties of the Fuchsia, the Heliotrope, and others which develop tops too heavy for their stalks to support unaided. Neat, substantial stakes should be provided, and the main stalk should be fastened to them as they reach upward. Do not use ordinary string as a fastening, as it will be likely to cut into the soft, tender wood of the young plant. Strips of cloth are better. Tie firmly, but not tightly.

Plants of trailing or drooping habit are spoiled when trained in upright form. Never attempt to go contrary to Nature in training any plant. Simply assist it to grow in the form Nature chose for it away back in the early days of her gardening experience. The

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natural tendency of a plant generally manifests itself while it is small, and this should be your guide in the matter of training.

Plants like the Boston Fern, with long, spreading, and gracefully drooping foliage, should be given positions on brackets, well up the wall, to be most effective. Many of the Begonias, having large leaves and long stalks, should be treated similarly. Few plants of the habit referred to are worth growing in the living-room unless they are given liberty to follow out their instincts as to the disposal of their branches. Crowd them down among ordinary plants and they lose their individuality, and are never pleasing.

Plants which produce their flowers at the extremity of their branches should be treated in such a manner as to secure as many branches as possible if you want a good showing of flowers from them. This is done by nipping and pinching back, as advised above, until you have all the branches you want.

Old, neglected plants can often be made over into pleasing specimens by cutting away nearly all their old top and forcing them to renew themselves. This is hardly worth

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while, however, unless the plant is one of a rare kind. Even then it is generally more satisfactory to take a cutting from the old plant and thereby secure a new one which can be trained intelligently and properly from the start.

More specific advice as regards training will be given in the chapters treating on the culture of the various plants adapted to indoor gardening.

X

THE DISEASES OF PLANTS



FEW plants are exempt from disease, and these exemptions are seldom worth cultivating, which is simply another way of saying that all desirable plants are subject to ills of one kind or another. Some plants are of such strong and sturdy constitution that they are able to withstand them without being greatly injured by them, while others suffer under slight ones, and often succumb altogether from severer ones, unless prompt and energetic means are taken to stay their progress.

Many plants are injured by overwatering. Because of defective drainage surplus water cannot escape from the soil, and as a result it becomes sour, and the plants take on a sickly look. The old leaves become yellow and drop off. Their new ones are weak, and the general condition of the plant is highly unsatisfactory. If it is inclined to

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bloom most of its flowers will blight. Applications of fertilizer with a view to strengthening the plant and encouraging healthy development are abortive. In fact, they simply make a bad matter worse.

In a case like this there is only one thing to do: Correct faulty drainage, and give diseased roots an opportunity to resume normal action.

In most instances, giving the stagnant water a chance to run off, and taking precautions against a recurrence of the trouble, will set matters right, after a little, provided the surface of the soil is stirred and put in a condition to admit air freely for the purpose of purifying and sweetening it. But if the trouble has existed for some time it may be necessary to remove a good deal of the old soil, and to cut away the ends of diseased roots, after which the pot should be filled with fresh earth, and water applied in very moderate quantities until the plant shows, by renewed growth, that it has put forth new feeding roots.

Great stress has been laid upon the necessity for good drainage in the chapter devoted to a consideration of that subject, and in order to more fully impress the importance of it upon the reader, I want to say right here:

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Whenever the surface of the soil in a pot looks wet and heavy, and *continues* to look so, examine its drainage system and make sure that there is nothing wrong there. Do this before your plant settles into a state of chronic ill-health.

Sometimes one's plants will take on a sickly look, but examination will show that the drainage is not responsible for the trouble. It may take some time to ascertain that worms are at work in the soil. You will probably find your first proof of this in the little flies that will be found emerging in great numbers from the surface soil. Further examination will show larvæ there from which these flies are hatched, and it will also doubtless show you worms feeding on the tenderest roots of the plant—small white worms that do not look dangerous, but are capable of doing a great deal of mischief, if let alone, because their attack on the roots robs the plant of vital force by sapping what is really its life-blood.

The most satisfactory remedy that I have any knowledge of for this condition of things is lime water.

To prepare the remedy, put a piece of fresh lime as large as an ordinary coffee-cup in a

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ten-quart pailful of water. Care must be taken to have the lime perfectly fresh, as the air-slacked article is valueless. The lime, if fresh, will cause a bubbling and boiling of the water, shortly after it has been dropped into it, and this will continue until it has dissolved. There will be a white sediment that will settle to the bottom of the pail. Pour off the *clear* water and apply this to your plants in quantities sufficient to saturate all the soil in the pots. Do not dilute it any, and do not apply it in small quantity, as many do, fearing to injure their plants by using too much. Water can hold only a certain amount of the active properties of lime in suspension—never enough to injure any plant except those which object to lime in any form and any quantity. It is necessary to make the application large enough to affect all the soil in order to have it beneficial, as a small amount, wetting only a small spot, will simply cause the worms to shift their location. One application may not be sufficient. Wait three or four days, then make careful examination of the soil, and if any worms are found repeat the operation. Do this until you are unable to find a worm.

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Worms are seldom found in fresh, clean soil. They are sometimes introduced in it by the use of barnyard manure not old enough to be thoroughly decayed. Often they breed in the dregs of tea or coffee used as a mulch. Avoid any and everything calculated to favor their production.

Angle or fish worms often work among pot-plants, but I have never been able to see that they do much harm. Doubtless the holes which they make in the soil may sometimes allow the water to run off so rapidly that it does not have time to soak in properly, and in this way plants may be injured through their agency, but never, I think, by a direct attack of the worms. Still, most persons object to them. They can be driven out of the soil by applying water containing spirits of camphor. Use a tablespoonful of the latter to five quarts of water. Apply a quantity sufficient to penetrate all the soil in the pot.

I have been told by many correspondents that all kinds of worms can be expelled from pots by sticking parlor matches, brimstone-end down, into the soil about the plants—five or six matches to a pot; also that a tea

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of black pepper will produce a similar result. I have not tried these remedies, being satisfied with the lime solution advised, but those of my readers who are fond of experimenting can do so, and perhaps they may find them of benefit. I would suggest, however, trying them on a plant which you do not care very much about, as the result might not be what you would like to have.

Of late years many plants have been afflicted with a disease of fungoid character. The edges of their leaves will turn brown and soon become dry enough to crumble under the touch. Frequently yellow spots will appear in the leaves. These will enlarge, become brown, and the tissue of the leaf will crumble away, leaving a hole that has the appearance of having been made by an insect. No insect can be found, however, and the owner of the plant is mystified. The trouble originates from spores of fungus that float about in the air. They settle upon a leaf, and soon affect it as described. Few plants escape the ravages of the disease when it secures a foothold in a collection. It does deadly and rapid work, and prompt action is necessary to counteract its destructive influence.

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The only remedy I have ever found for it is Bordeaux mixture—a preparation of copper sulphate and fresh lime. This is what small-fruit growers and nurserymen depend on to protect their orchard products from the ravages of the various fungoid diseases now so prevalent in all parts of the country. The mixture can now be obtained of florists and plant-dealers in paste form, soluble in water. This is what every amateur gardener should procure instead of attempting to prepare the mixture for himself, as the process is a somewhat elaborate one. Instructions for using it will be found on the cans in which it is sold. Regular and persistent use of it will keep the disease in check, if it does not wholly rid your plants of it.

Roses and a few other plants are sometimes attacked by mildew. You may know of this by a curling of the young leaves, and a white substance, like dust, that will be found on many of them. This disease is generally the result of cold drafts, exposure to a low temperature alternating with a higher one, and a lowering of the vitality of the plant from various causes. It seems to have something of a fungoid character, which makes it pos-

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sible for it to communicate itself to other plants by spores in rooms where drafts can not be held responsible for its spread. The remedy is protection from all cold currents of air, and dusting the affected plants, while damp, with flour of sulphur.

XI

THE INSECT ENEMIES OF PLANTS



PLANTS suffer more, I think, from the attacks of insects than from disease. Few plants are exempt. We seldom find any collection wholly free from them in spite of the many and determined efforts on the part of the owner to put them to rout. Grow Tea Roses and Pelargoniums and you will find it almost impossible to prevent the aphis, or green plant louse from attempting to take possession of them. Grow Coleus, and other plants of similar habit, and the woolly aphis or mealy-bug will be almost sure to take up his quarters on them. In nearly every living-room where the temperature runs high and the air is dry, the red spider delights to do his deadly work. If you can prevent scale from troubling your Palms, and other plants having a firm-textured foliage,

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you will certainly be justified in congratulating yourself on an experience that falls to few persons who attempt plant-growing in the house.

The fact is, every person who sets out to grow plants must take it for granted, from the beginning, that she will have to wage war with all these enemies. Unless she is willing to do this she ought not to make the attempt. "Forewarned, forearmed" holds good here, provided she studies the subject until she knows the nature of each enemy she has to deal with, and the weapons to make use of against it, before he arrives upon the field of action. Wait until he is there and he has you at a great disadvantage.

The aphid appears to be the chief enemy of plants because he is found in great numbers, is large enough to be easily seen, and can be found almost everywhere. But he, though dangerous when allowed to carry on his work unmolested, really does far less injury to ordinary plants than the red spider. This enemy is so small that he can hardly be seen by the naked eye, and on this account his presence is often unsuspected for some time after he locates himself upon your plants. Indeed, I have been told many times by persons who had

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written for advice, from whose description of their plants I had diagnosed red spider as the cause of the trouble, that I must surely be mistaken, for they had never seen such an insect on their plants. But on finding out a little more about the pest they had discovered that he was there, engaged in active and deadly work.

Fumigation with tobacco used to be the principal agency employed to fight the aphid. But most women are so sensitive to the disagreeable smell of burning tobacco that they prefer to go without plants rather than be nauseated by it, and having its stale, sickening odor clinging to the rooms and everything in them for days after fumigating. Not so very long ago it was discovered that the active principle of nicotine could be used with far more satisfactory results, when applied in water, in the form of a spray. For a time we steeped our tobacco, and extracted its toxic strength in that way, applying the "tea" thus secured to our aphid-infested plants by showering, or dipping. But this was a far from pleasant process, as the odor given off in making the infusion was almost as disagreeable as tobacco smoke. Because of this many persons neglected to make use of it, and contented them-

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selves with brushing off the aphides with a whisk-broom, and burning those secured in this way. This was satisfactory, as far as it went, but the trouble was that it did not go far enough. No matter how thorough one might be in the removal of the insects, some would escape, and, as they breed with wonderful rapidity, the plants would in a short time be again covered with them.

Then the chemists took up the matter and succeeded in extracting the nicotine principle of the tobacco leaf so perfectly that a small quantity of it, added to water and sprayed over the infested plants, produced results far more satisfactory than any that had been achieved before. This extract was put on the market under the name of Nicotocide, and has come into general use, wherever plants are grown. All one has to do, in making use of it, is to dilute it with water according to the directions on the can or bottle in which it is sent out, and spray it over the plants, or, in case they are badly infested, to dip them in it. It is sure death to every aphid it comes in contact with if used as directed.

Dipping has one advantage over spraying—that of being more thorough, as no insect



CACTUS
(*Phyllocactus*)

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can escape when the entire plant is submerged. I would advise giving badly-infested plants a bath of this kind, at the beginning of the fight. After once freeing them from the enemy they can be *kept* free by using the extract occasionally thereafter, more as a preventive than a cure. The smell given off by it, in spraying, is not strong enough to be very unpleasant, and it is speedily dissipated by admitting fresh air to the room. We therefore need fear the aphid no longer. True, it is some trouble to prepare the infusion, and some expense is connected with it, but these items are so slight, as compared with the benefits resulting, that no lover of flowers has any excuse for allowing her plants to be injured by this universal pest.

I am often asked: Where does the aphid come from? I do not know. I have seen collections of plants that were apparently free from it to-day, and to-morrow hundreds could be found on them, and these would seem, in three days' time, to have been multiplied by thousands. And yet no new possibly infected plant had been added to the collection. Where they had come from, or how they came no one could say. All that could be said was—that they were there, and had come to stay, unless

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prompt and energetic means were taken to dislodge and rout them. The time to begin the fight against this insect is when the first one is discovered. Lose no time in procuring the weapon I have spoken of, make effective use of it, and when you have succeeded in getting control of the enemy keep it.

The red spider is not always red. He sometimes wears a brown coat, sometimes a brick-colored one. But his methods of operation are always the same. It is an easy matter to discover him after one knows what to look for. If the leaves of your plants begin to turn yellow, and to fall off, and they take on an appearance of general ill-health, suspect the spider as being at the bottom of the trouble. It is true that other causes may produce similar effects, but it is well to presume that the spider is responsible for the trouble, and an immediate examination should be made with a view to determining the facts in the case. Look at the underside of the yellowing and dropping leaves. If you find tiny webs there you can be sure that the spider is causing all the mischief. But do not be satisfied with this. Look sharply into these webs, and the chances are that you will see mites, red, brown, or brick-colored,

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scurrying about,—creatures so small that they look like grains of cayenne pepper more than anything else, when they happen to be red,—and then you will know that you have located one of the most destructive of all insects that work on house-plants. It hardly seems possible that so tiny a creature can do such deadly harm, but it will ruin the strongest of plants in a short time if allowed to go on with its work unchecked.

Fortunately, perhaps, we have but one remedy for the red spider, therefore we do not have to perplex ourselves in making choice among many. This remedy is water—clear water—applied in the form of a spray, or as a dip-bath. Above everything else the spider abhors moisture. He finds the atmosphere of our living-rooms so deficient in it that it is exactly to his liking. This explains why he locates himself on our house-plants. If, by any means, we can make the place unpleasant to him, he will either leave or be so discouraged by the unfavorable conditions we have created that he will do but little harm. In other words, if he cannot be completely routed, he can be kept in check. But, all the time, aggressive measures must be kept upon your part.

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If plants have become badly infested before the presence of the spider is suspected, I would advise resorting to what may be called heroic treatment, and this at once, in order to cripple the enemy at the very outset of the campaign. Heat a tub of water to 120° F. and immerse the plants in it, allowing them to remain submerged about half a minute. It may seem to you, if you dip your hand in water heated to the point named, that a bath in it must mean sure death to your plants. But comparatively tender ones will not be injured by it, as you can easily satisfy yourself by experimenting with one or two before proceeding to treat all of them. The reason for using the hot bath is this: The spiders are on your plants, in great numbers. Spraying might not reach all of them, and it is desirable to get rid of them as soon as possible. The hot water will enable you to accomplish this. After having killed them off, the spray can be made use of, regularly, to keep them from returning, or, at least, to keep them in check. Apply water freely, and as often as possible. Most persons will probably think once a day too often, but it is not. Those who have a plant-room can use water reck-

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lessly, but quite likely those who grow their plants in the living-room will not spray oftener than two or three times a week. If they are not willing to go to much trouble in caring for them, they must be satisfied with inferior plants, such as they will always have if they do not give the amount of care necessary to secure best results. The more water you use in spray and shower the greater will be the amount of moisture in the air; the more moisture there is the fewer spiders there will be. Therefore use a good deal.

Do not be satisfied with spraying and showering. Keep it evaporating in pans on stove, and register, and radiator. This method of supplying moisture is an important one, because, if the pans are kept filled, there will be constant evaporation, while the result of spraying or showering, though apparently more effective at the time of application, is really much less permanent in effect.

Where but few plants are grown the dip-bath is always to be advised, because it never allows any part of the plant to escape a wetting.

In spraying your plants, it is well to turn them down on their sides, and throw the

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water up against the underside of the foliage, for there is where the spider lurks, thinking, no doubt, that he is safer there than elsewhere from dews and showers, which is what a spraying stands for to him it is reasonable to suppose. You will find the red spider doing just as deadly work among your outdoor plants, in a hot, dry season, as among your house-plants. But let a rainy spell come on and it is the end of him, for the time. This goes to prove that the proper way to fight him is to make it moist for him, and keep it so. Do not labor under the impression that he will leave of his own free will, for he never does that. He will only leave because you make it unpleasant for him, and the chances are even then that he will leave some of his posterity behind to wait and watch for the moment when you relax your vigilance. That moment the enemy will make an effort to reinstate himself. It is therefore highly important that the grower of house-plants should understand that eternal vigilance is the price of freedom from the red spider.

Scale attacks all plants having smooth, firm-textured foliage and stalks. You will

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find it in great quantities on Palms, along the lower side of the midrib of the leaves and the leaflet divisions, generally small flat, and white, with a dry look. A *scaly* look exactly expresses its appearance. On Lemons, and Oleanders, whose leaves are thicker and have more substance than those of the Palm, scale is often as large as a kernel of rice, with a rounded, shining upper surface, gray-green in color, and suggestive of pulpiness inside its shell. On other plants it takes on a dry, dark brown look. All varieties of scale affect plants in the same way—by sucking their juices. They affix themselves to the plant, and remain there indefinitely. It is to be supposed that they move sometime during their lives, but I have never yet seen one in motion. They cannot be removed by brushing, so firmly do they adhere to leaf or stalk. Spraying does not affect them. Dusting with powders is of no benefit. I know of but one effective weapon with which to fight this enemy, and that is an emulsion composed of half a pound of laundry soap, one teacupful of kerosene. Cut up the soap and pour over it enough water to cover it. Set it on the stove to become liquid. When dissolved,

bring it to the boiling point and add the kerosene. Remove it from the stove and agitate it forcibly while cooling. A Dover egg-beater is one of the best things you can use for this purpose. The soap and oil will unite and form a jelly-like mass. Use one part of this mixture to ten parts water. The emulsion will readily unite with water, if well stirred for a minute or two before using. Apply this to the plant in a spray, using it liberally, or wash the plant with it, using a soft cloth or brush. After the first application has had a chance to soak in among the colonies of scale, go over the plant with a rather stiff bristle-brush and forcibly remove every creature that has loosened its hold, under the influence of its recent bath. Frequent use of the kerosene emulsion will prevent scale from forming in large quantities.

The woolly aphis, or mealy-bug, is a most disgusting looking creature when seen outside the cottony envelope in which he shuts himself. It is not often that he emerges from it, during the day, therefore it is generally supposed that the insect and its covering are part and parcel of each other. Such is not the case, however. The woolly or cottony

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substance is the home in which he hides the greater part of the time. When this pest congregates in a mass, as it has a habit of doing, it can be easily killed by pressure if one is not too squeamish to deal directly with it.

Like the scale, the mealy-bug subsists on the juice of the plant, and if allowed to increase its progeny will soon take entire possession of it, and the result is speedy death. There are several effective remedies in the market. Fir-tree-oil soap, lemon oil, and thrip juice, are all good, if used according to the directions which accompany them. They, like Nicotocide, can be procured of most florists, and all dealers in plants and seeds.

The eggs of the woolly aphis or mealy-bug are generally deposited in places where they are not readily discoverable, therefore it is necessary to fight this pest with liquids that will penetrate to all parts of the plant.

If any plant becomes badly infested before you find it out, I would advise destroying it at once, before the rest of your collection becomes contaminated.

It should be borne in mind that all insecticides are always to be applied to the plant itself—never to its roots, as some suppose.

XII

WHAT WINDOWS TO GROW PLANTS IN



HOSE who set out to grow plants in the house for the first time often make some serious mistakes by selecting kinds not adapted to the windows in which they propose to grow them.

Too often they take it for granted that a window with a western exposure is just as good as a window opening to the south, or to the east, and they find out their mistake when it is too late to rectify it. Unless proper exposure can be given plants, I would not advise trying to grow any until you are sure that you can modify existing conditions to a satisfactory extent.

There are many plants which must have full exposure to sunshine. They may live on indefinitely in sunless windows, but they will prove comparative failures there. There

WINDOWS

are some which do not care for sunshine, and seldom prove satisfactory in windows facing the south. Others like a moderate amount of sunshine, but soon fail if exposed to the strong, hot rays of the western sun. These things must be taken into consideration in making a selection of plants for the house, and the plants chosen must be such as are adapted to the exposures we happen to have if it is not possible to secure such as we would like.

Geraniums, Heliotropes, Abutilons, Roses and many other flowering plants that are favorites with amateur gardeners, like plenty of sunshine, and do better in windows with southern exposure than in any others. All foliage plants whose beauty depends on richness of coloring must be given sunshine in generous quantities in order to fully bring out their charms. Begonias, and other popular plants of similar habit, do best when given eastern windows to grow in, where they will get the sunshine of the forenoon, which is generally mild. Palms, Ferns, Ivies, and the several varieties of Asparagus now so extensively grown in the house, will flourish without sunshine, and are therefore adapted to windows

WHAT WINDOWS TO

with northern exposure. Few plants do well in western windows unless something is done to temper the hot afternoon sun. Persons who have other windows in which to keep their plants seldom attempt to make use of these. But the woman who has a great love for flowers will contrive to grow good ones under the unfavorable conditions governing western exposures, because she will make all possible efforts to effect a compromise between her plants and the sunshine. She will train vines over the window, outside. She will put up awnings which can be let down during the afternoon. She will hang curtains against the glass to break the heat, and she will succeed in growing better plants than her neighbor who has better facilities for plant-growing, but lacks her affection for them. When I see how some women grow fine plants against great difficulties, I am always reminded of the old saw that "Where there's a will there's a way." Therefore I want to say to the woman who loves flowers that if she has but one window in which to grow plants, and that happens to be one opening toward the west, don't be discouraged. Put plants in your available window, and keep experi-



BEGONIA TEMPLINII

GROW PLANTS IN

menting with them until you have found kinds which will grow there, after doing what you can to make matters pleasant for them.

An awning covered with vines, as described in the chapter on Window and Veranda Boxes, can be secured with but little trouble and less expense, and it will answer the double purpose of modifying the heat at the window and of making the window attractive from the outside. It will not be found quite as satisfactory, however, from a practical standpoint, as one of cloth, because the latter can be raised on sunless days, and during forenoons, when the plants should be getting all possible benefit from light.

Northern windows can be made charmingly attractive by filling them with shade-loving vines and plants. Ferns will flourish there during the summer, and many kinds of Begonia will do better than in sunny windows. Some varieties of Fuchsia will bloom well there—*speciosa*, for instance. *Primula obconica*, which is tinged with lilac when exposed to the sun, will give pure white flowers in such a window, and will bloom constantly and profusely. If *Adiantum* Ferns are made use of, along with feathery *Asparagus plumosus nanus*

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to train about the frame of the window, and droop from above, with a Boston Fern occupying the place of honor in the center of the group, a north window can be made the coolest looking place in the whole house, for all the plants of which I have made mention as adapted to culture in it are suggestive of wild wood nooks and corners into which the sun never penetrates. If you want a little more brightness than these plants will furnish, you can use a few cut flowers among "the green things growing."

XIII

WINTERING PLANTS IN THE CELLAR



ANY summer-flowering plants adapted to amateur culture can be carried over the winter more safely in the cellar than elsewhere. There is no reason why they should be allowed to retain a place in the window at this season, as nothing in the way of bloom can be expected from them, and their health does not demand such treatment. On the other hand, there is every reason why they should go into cold storage. Here they can remain wholly dormant during the winter, while in the window they would be constantly excited towards growth under the combined influence of light and heat. The result of such excitement, during a period when they ought to be enjoying perfect rest, would be a weakened plant, and this at the

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very time when it ought to be ready for strong, vigorous development. The space such a plant would occupy in the window might much better be given up to plants from which bloom can reasonably be expected.

These plants ought to go into cold storage by the first of November. It is well to keep them in cool rooms until about that date, in order to give them ample time to ripen off their annual growth. While in cold storage they should be given very little water, as advised in the chapter on *The Rest of Plants*.

They should be stored in a place that is cool—one in which the temperature ranges but a few degrees above the freezing-point will be much better for them than a warmer one. Light should be excluded so far as possible. A cellar that is quite warm, and to which light is admitted freely, is a poor place to store plants, as it constantly encourages them to make attempts at growth, and these attempts are not only failures in themselves, but very weakening in their effect upon the plants. If water were to be applied liberally, the disturbance would be still greater, as it does much to increase the excitement resulting from light and heat. Therefore be

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governed in watering your cellar-stored plants by the advice given in a preceding chapter.

I would not advise the pruning of plants when they are placed in the cellar. Defer this until you bring them up in spring. Doubtless some of the old branches will need to be cut away then, but we can not decide about this in advance. It is always best to wait until the plants begin to grow before applying the knife. This will begin very shortly after they are brought to the light and warmth of the living-room, and water is applied.

As a general thing, plants should be left in cold storage until about the first of March. This will give them about four month's rest.

Geraniums that have bloomed during the summer can be wintered in the cellar with comparative safety if most of the old top is cut away, and very little water is given. Some persons succeed in wintering them satisfactorily by hanging their roots from the ceiling, entirely free from soil. But as few cellars are arranged in such a manner as to furnish proper conditions for this method of wintering, I would much prefer to trust my plants in boxes of almost dry soil.

Soft-wooded plants, like Begonias, cannot

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be kept over winter in the cellar with any certainty of success. Sometimes they will survive, but this is the exception that proves the rule *against* storing them there. Only plants of deciduous or semi-deciduous character are adapted to cold storage.

Tea Roses, and other tender members of the rose family are better off in the cellar in winter, than in the garden beds, even if given the most elaborate protection. I would lift these plants late in the season—not earlier than November—and pack them closely in boxes of sand. Make it very firm about their roots. Give them a place in a cool corner, away from the light. Slight freezing will not injure them. In lifting them, do not shake their roots out of the soil in which they have been growing. Simply cut around them with a sharp spade, raise them from the ground carefully, and set the block of earth containing them into your box, filling in solidly between them with sand.

XIV

THE GENERAL CARE OF HOUSE-PLANTS



THE care given most collections of house-plants consists, I am sorry to say, of watering in haphazard fashion, keeping them in a temperature many degrees too high for health, and zealously preventing any fresh air from getting to them.

The care that *ought* to be given them is quite different. It may be urged by those to whom what I have said about the care *generally* given applies, that it is not an easy matter to overcome the various obstacles in the way of success. This, I grant, is true. But the woman who really *loves* plants, will, as I have said elsewhere, endeavor to make their life as pleasant as possible, even if a good deal of labor is involved in the attempt.

If she is *not* willing to do this, she ought

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not to attempt to grow plants. Her attempts will be quite likely to result in failure, as they should. I have no sympathy for the woman who puts plants in her window simply because her neighbors have them. You must have flowers *in the heart* before you can have them in the window, or anywhere else.

As regards temperature: We make ovens of most of our houses. We allow the thermometer to run up to eighty, ninety, often a hundred, and because the heat furnishes us a sort of pleasant sensation we fail to understand why our plants do not do well in it, and we also wonder, quite frequently, why *we* do not feel brisker, livelier, and healthier generally. We keep the fires going, we keep the windows and doors closed against fresh air, and when we begin to feel drowsy, and stupid, and languid, we think we have taken cold, and most likely we open the fire-drafts a little wider, and put in more fuel, and burn all the oxygen out of the atmosphere, and make a little surer that none of the sweet, pure air of God's out-of-doors can find its way in to relieve the general congestion of things. We worry about our house-plants freezing, while all the time we are doing our best to roast

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them to death. Such is the almost criminal carelessness that the most intelligent of us are guilty of, in our treatment of our plants. We make the winter a season of slow suicide for ourselves, and our plants fall victims to our mistaken ideas of comfort.

Plants, when grown as they ought to be, are as useful to the human occupants of the room as thermometers are, if we are willing to be governed by their ideas of the proper thing, as regards fresh air, temperature, and moisture. They will show all the vigor of plants in the garden instead of the weaknesses peculiar to the ordinary collection. They will not be lanky, and spindling, like the general type of house-plant, and they will bloom—actually bloom,—much to the wonderment of many women who attempt plant-growing under the difficulties I have mentioned, and who are tolerably well satisfied if they can keep their plants alive during the winter. When you see fine plants in the windows of a home, you can be sure they have been given fresh air daily, have not been subjected to intense heat, and that there is moisture in the rooms where they are kept. This is why I say they are useful as indicators of conditions which prevail in the

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well-regulated home. If you can keep your plants healthy, it stands to reason that the rest of the family ought to be so, since what suits the vegetable part of it is about right, in most respects, for the human part.

Most plants will be satisfied with a temperature of seventy degrees F., by day, and sixty by night. A few prefer seventy-five by day, and sixty-five at night. We may consider seventy on the cool side, so habituated have we become to a higher temperature, but if we set out with the determination of accustoming ourselves to it, we will soon discover that it affords greater comfort than the higher one, and that the feeling of lassitude and general enervation which we have complained of heretofore, has been dissipated by the change. I am not making this statement as a round-about way of saying that we should accommodate ourselves wholly to conditions that will please our plants, and decry personal preferences and comfort for their sakes. I make it because it goes to show that so much more sensible are their demands than ours that if we succeed in making them comfortable we are benefited as much as they are. There is a poetical justice in this which is quite inde-



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pendent of mere sentimentalism, if we are wise enough to recognize it.

Fresh air should be admitted on every pleasant day, no matter how cold it is. Do not open the windows at which the plants stand, and allow the cold air to blow directly on them, for frequently a blast of cold air contains a chill sufficient to seriously injure a tender plant. Open a door at some distance from them, and allow the cold out-door air to mix with the warm air of the room before it reaches them. It's a good plan to lower a window on the opposite side of the room while the fresh air is coming in. This will drive out the foul air. Too much stress can not be laid on the necessity of airing plants. They breathe, as we do, and they cannot breathe the same air over and over and remain healthy.

Speaking of the breathing of plants reminds me to say that they breathe through pores in their leaves, and if these pores become clogged by dust it will be difficult for them to receive a great deal of benefit from fresh air. Therefore aim to keep your plants clean. This can easily be done when you have a room for them, but it is not such an easy matter when they occupy the windows of the living-room. Dust

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from sweeping will settle on them, and frequent washings will be necessary to remove it. It is a good plan to throw a sheet of cheese-cloth or some other light, thin material over them when sweeping and dusting. Also to postpone showering until after the dust has had a chance to settle. If it is not possible to keep them quite clean by these little attentions, they should be removed to kitchen or bathroom once a week, turned down on their sides, and given a thorough washing. Drench them. Allow them to remain wet for a time, and then turn on the hose again, with considerable force, to remove the dust which has been rendered tractable by soaking. The cleaner you keep your plants the healthier they will be. I have urged cleanliness, so far, wholly on the score of health. It scarcely seems necessary to say anything about dirty plants to the woman of average neatness, for if she believes that cleanliness is next to godliness and practices what she believes, she will never allow her plants to get into a condition that is offensive to the eye. If she takes no pride in keeping them clean, she doesn't care enough for them to make it worth while to give her any advice on the subject.

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Fortunately washing, combined with frequent showerings between times, does much to keep down insects and therefore it serves a double purpose. Clean, tepid water should be used, and it should be applied to the whole plant, especial care being taken to have it reach the underside of the leaves.

Few plants will do well in a very dry air. Those that do best in dry rooms are kinds with thick, firm foliage, like the Ficus, Aspidistra, and Palm. Plants of a more delicate foliage will soon show the effect of a too dry atmosphere after the rooms are closed against the admission of fresh air, in fall, and the fires are set going, by yellowing foliage and a cessation of vigorous growth. The red spider—that most voracious of all insect enemies—fairly revels in a hot, dry atmosphere, and the effect of his attacks upon plants will soon be seen upon plants that were apparently in perfect health a short time before. Moisture in the air will, to a considerable extent, counteract the bad effect of our overheated rooms, and it will also have a tendency to check the ravages of the spider; therefore a double benefit results from its use. The problem is—how to saturate the air most effectively with it, and

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keep it in that condition. Showering the plants daily will help to do this. Water in evaporation from vessels on stoves, registers, and radiators is of great benefit because this evaporation can be kept up if care be taken to keep the vessels constantly filled. In the plant-room the plants can be showered, the room closed, and any desired degree of humidity can be secured and maintained with very little trouble. In the living-room it is quite different, but much can be done to correct the unfavorable conditions by those who are concerned over the welfare of their plants. The soil in the pots should be frequently stirred to keep it from crusting over, and to allow air to get to the roots of the plants, also to keep down weeds, and assist evaporation.

Plants in the window should be turned at least once a week to give all sides of them an equal chance at the light, and thus prevent them from becoming one-sided and unsymmetrical. It is a good plan to shift them about frequently in the window, giving those that have been kept farthest from the glass a place near it, for a time. In ordinary windows it is well to keep the tall plants at the sides, and give up the center to the smaller ones, as this

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prevents the larger ones from robbing the little fellows of their just share of light and sunshine. The effect is finer in an æsthetic sense, as the plants can be so arranged that a pretty slope from the outside to the center of the window is secured, as if the plants had been "banked." Such an arrangement will afford a delightful outlook from the room through a vista of flowers and foliage, and will be found vastly more pleasing than the ordinary arrangement which is really a lack of arrangement. The woman who loves flowers and likes to work among them will always be discovering new ways by which they can be made attractive, and can be trusted to study these things out for herself.

XV

THE SUMMER CARE OF HOUSE-PLANTS



ANY persons who grow house-plants are under the impression that they must be turned out of doors during the summer. Some turn them out of their pots and plant them in open ground. Others put them almost anywhere, so long as it is out of doors, sometimes to their benefit but more often to their detriment, while others are content to leave them on the veranda or in some other semi-sheltered place. Some take just as good care of them during the summer as at any other time, while many neglect them shamefully, and have, as a natural result of their inexcusable negligence, only a lot of inferior plants to remove to the house when cold weather comes.

The fact is, all house-plants need care and

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attention the year round. The amount of labor may not be as much at one season as another, but such attention as is necessary to keep them in good condition must be given *whenever it is needed*, and there is no time when it is safe to let a plant look out for itself entirely, unless that plant is growing in the garden-bed. Even then it should be well watched to prevent it from wasting much of its energies on growth that will have to be sacrificed later. The wise gardener never relaxes her vigilance in caring for her plants. If no attention is needed, well and good, but she will always be on the lookout for it, and be sure she will be ready to minister to whatever need makes itself apparent. Plants are often unruly, when given an opportunity to do as they please by putting them into the open ground and leaving them to care for themselves, and it requires constant watchfulness to prevent them from doing things they ought not to do.

I never advise turning plants out of their pots, and planting them in the garden, or of plunging the plant in its pot, unless one expects to be away from home for a time, and feels doubtful about the care they would

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receive if left in charge of others. In such a case it may be safer to put the plant into the ground than to leave it in its pot on the veranda and trust it to the tender mercies of a servant or the men-folk.

A plant put into the ground will nearly always make a vigorous growth, and were the summer the only season to be considered there would be no question about the value of this method of treating one's plants during the period between June and October. But the fact must be reckoned with that before cold weather comes our plants must be lifted and potted, and this cannot be done without giving them a severe check, no matter how carefully we do the work. For many of their strongest roots must be cut off in our efforts to get them into pots of a convenient size. These roots it is utterly impossible for us to save, as they will extend far beyond the limit of any ordinary pot. As the lifting and potting process is generally gone through with just before the coming of frost, it will be readily understood by any one who gives the matter a little thought that the check given the plant could not come at a more unfortunate time. The removal of the plant to the house, which must follow a

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little later, will, in itself prove a trying ordeal for it, since indoor conditions differ so greatly from outdoor ones. Because it is already suffering from injuries inflicted in taking it from the ground it will be in poor condition to stand the strain that faces it. If it could be potted early in the season, and allowed to become well established before removal to the house, its chances would be much better. But while the weather is pleasant and winter seems a long way off, not one amateur in a hundred will be likely to think of lifting her plants. It will therefore be readily apparent to anyone that nothing is gained, in the long run, by turning a plant out of its pot for the summer. But, on the contrary, much is lost, since it must go into winter quarters in a greatly enfeebled condition, and it may be months before it regains sufficient vitality to do satisfactory work. Quite frequently a plant will not get over the drawbacks incident to the fall season before winter is ended, and such a plant is always most unsatisfactory, for we want flowers in winter—not spring. But for this failure to do itself justice the plant should not be held responsible. It suffers from its owner's lack of judgment.

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I leave all plants intended for use in the house next winter in their pots in summer. In fact, my house-plants remain in their pots the year round. They are always under control. They can be so treated that they will bloom or rest. They do not make such rampant growth as they would if planted in the garden, but I am never in dread of the fall, as their roots are not to be disturbed, and by proper treatment they can be brought to the critical period of removal to the house in strong and healthy condition. Though the change from out- to indoors will naturally affect them to a considerable extent, they will speedily recover from it and be ready for active work by the beginning of the New Year.

A veranda that will shelter them from too great heat and from winds is a good place for house-plants during summer. But a much better place is a shed constructed expressly for them. Such a shed is easily made by setting four posts in the ground to support a roof of lath or narrow strips of wood, placed about an inch apart. This will allow them to get all the sunshine they need, and this without any danger of scorching, as the shifting

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shade afforded by the strips will prevent the concentration of heat. Such a shelter is as airy as any location in the garden-beds, there being no enclosure of sides or ends, and under it plants will flourish admirably, while those outside frequently suffer from excessive and untempered heat. If there are any boys in the family they will no doubt take pleasure in exhibiting their mechanical ability in the construction of a plant-shed for you. Tables can be provided for the plants to stand on, or the pots can be set on the ground. In the latter case, put two or three inches of coal ashes under each pot to prevent worms from entering through the drainage hole.

Plants intended for next winter's use should receive much of their training now, while they are in a period of active development. Pinch them back to make them bushy, and compact, and symmetrical. Encourage growth but not the production of flowers. Never lose sight of the fact that plants allowed to bloom during the summer can not be expected to give flowers in winter; therefore aim to give such treatment as seems calculated to hold their flowering energies in reserve for the time when bloom will be more

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appreciated. Make it a rule to pick off every bud, as soon as discovered, thus concentrating all the energies of the plant in the development of branches rather than of flowers. It will be understood that this advice applies only to plants intended for use in the house next winter—not to plants of summer-flowering habit, like the Fuchsia, the Gloxinia, and the Tuberous Begonia. These should be allowed to bloom freely at this period, as they can not be made over into winter-bloomers by giving them the treatment advised above.

Repotting, if necessary, can be done at intervals during the summer. I strongly advise attention to this phase of gardening early in the season, that the plants may have ample time in which to reestablish themselves before cold weather comes on. In the chapter on Fertilizers I have had something to say about the inadvisability of using as large pots as we have heretofore thought necessary to the satisfactory development of a plant. If it is the intention of the owner of a collection to make use of fertilizers during the coming season, do not put your plants into pots more than one size larger than they have been growing in, if you repot them. Depend upon

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the nutriment supplied by whatever plant-food you make use of, rather than upon a large quantity of fresh soil. We frequently injure plants by over-potting them.

Plants grown solely for their foliage, like the Ficus, the Rose Geranium, the Palm, and others of that class, should be encouraged to make reasonably vigorous growth now. Keep constant watch of them, and be prompt to correct any tendencies to erratic growth. Prune with a view to symmetry, and choose for each plant such form as seems most in harmony with its natural habit.

Care must be taken to see that insects do not injure your plants in summer. The aphid will come, but a prompt and thorough application of Nicotocide will rout him. The red spider will attempt to establish himself on them, but daily showerings will discourage him.

Water must be supplied freely to plants in pots, as evaporation will take place very rapidly at this season. A little neglect as regards watering regularly, and in sufficient quantities to supply the needs of the thirsty plants, may prove the beginning of considerable trouble, as most plants do not recover readily from the effect of drouth at the root.

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If allowed to become very dry during hot weather, their delicate feeding-roots will quite likely be ruined, and not until others have been formed will the plant resume development. Guard against a happening of this kind by watering your plants twice a day, if necessary.

Never allow their pots to be exposed to hot sunshine. They will become so heated, on the side toward the sun, that the tender roots within, that come in contact with that side, will be literally scorched. Shade the pots by setting up a board against them, or fill in about them with grass-clippings from the lawn.

If your plants are kept on the veranda, do not fail to shower them at least once a day, preferably after sundown. Use water liberally. Many kinds seem to take as much delight in having it applied to their foliage as to their roots. This is especially the case with the Fuchsia.

If you have plants of slender habit, do not neglect to furnish them with support of some kind while they are growing. Begin to tie them up while they are small, and keep them securely tied during all the after stages of their development. It is an easy matter to spoil a delicate young plant if no support is furnished it.

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Those who would reduce the care of plants to a minimum during summer, yet who are averse to turning them out of their pots, practise what is called the "plunging" system. This means that the plant, *in its pot*, is sunk into the ground until the pot is even with the surface of the soil. Of course the labor and risk of repotting in fall is avoided by this method, but unless constant care is taken to prevent the soil inside the pot from getting dry there is great danger of disastrous results. Because the soil outside the pot appears moist it is an easy matter to deceive ourselves into the belief that the soil inside of it must be in a similar condition. We forget, or overlook, the fact that the pot, though porous to a considerable extent, does not admit moisture in sufficient quantity to make the soil in it as moist as it ought to be, and we neglect to apply water until the plant shows, by wilting, that it is suffering severely. Then we drench it, thus going to the other extreme, and alternating periods of too little water and too much are always harmful. Aim to secure the "happy medium" that makes, and keeps, the soil moderately and evenly moist.

Plants in pots sunk in the ground ought to

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be examined daily to make sure they are getting all the moisture they need at their roots. Keep this in mind.

I have never been able to see that sinking or plunging plants saved much trouble, if they are given the amount of attention necessary to keep them in good condition; therefore I have no hesitancy in advising keeping one's plants in pots over summer, but keeping them out of the ground, on veranda or under shed. If this is done, we are pretty sure to give them a proper amount of attention, because we know their welfare depends on it.

If plants are plunged, a layer of coal ashes should be put under them to keep out worms.

Do not be in too great hurry, in spring, to get your plants out of doors. Some persons put theirs out in April, and lose them in one of the frosty nights we are quite likely to have, at the north, until the middle of May. Better wait until you are sure the weather has become warm and settled before you turn your pots out of doors. Keep in mind the fact that they are not strong like outdoor plants, and therefore are in no condition to withstand the effect of cold, raw, chilly weather.

XVI. PLANT ROOMS



WHILE plants can be grown with great satisfaction in the ordinary living-room if one is willing to give them the proper amount of care and attention, it is quite true that they can be grown much more satisfactorily in rooms where the air and temperature are under better control. In the living-room we have to compromise between the plants we grow and its human occupants, but where our plants can have a room all their own, matters can be regulated to suit their requirements, and many of the drawbacks which operate against plants in the living-room can be avoided altogether. Under such conditions it is possible to grow many kinds of plants to a degree of perfection impossible to attain in the ordinary dwelling.

Real greenhouses, even if small, are considerably expensive, and it is often difficult, if not impossible, to add them to a dwelling in

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such a manner as to give entire satisfaction. However, where it can be done, I would advise it, for the result will surely be far more satisfactory than any other method of plant-growing, for reasons already given, and many more that could be urged in its favor. But where the real greenhouse is out of the question, I would strongly advocate the claims to consideration of a room built expressly for plants.

We expend more money on the ordinary bay-window, in an effort to make it ornamental from an architectural point of view, than would be necessary in building a room large enough to accommodate several times as many plants as can be grown in the bay-window of the usual style. Such a room need not be very expensive. It ought not to cost more than any other room of similar size, as the sash and glass used will not be more expensive, in most places, than the boards, lath, and plaster entering into the construction of the ordinary room. If a glass roof is added—and have one, if possible, if you have a plant-room built—the glass and sash-bars necessary for it ought not to cost more than the rafters, sheathing-boards, and shingles of the ordinary roof. The aim should be to use glass everywhere it



A PLEASING WINDOW ARRANGEMENT

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is possible to do so; consequently the lumber-bill—an important feature in building nowadays—will be reduced to a minimum. Really very little lumber will be required—simply the framework of the room, and flooring, with a small amount of boarding below the sash. A concrete floor can be put in at a less expense than one of wood, and the room will be all the better for it, so that economy can be practised here as elsewhere. The sides and ends, from within two or three feet of the floor to the roof, should be filled with sash, with plain casings between each section. One will be surprised to find how reasonably such a room can be built when he sets out in search of practical information regarding it. Go to a competent builder with your plan, if you have any—if not ask him to make one for you—and let him give you an estimate on the cost of it before you decide that you can not afford it.

If it does not seem advisable to attempt the construction of such a room, it may be that there is a veranda or piazza off the living or dining-room that can be converted into a plant-room without much trouble or expense. The first thing to consider is the exposure it affords. It should face the south, south-east, or east in

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order to give best results. A practical carpenter can tell you very nearly what it would cost to fill in its ends and side with glass, and make the walls below the sash, and the floor, frost-proof. If the old roof is left on the room will not be nearly as satisfactory as it will be if a glass roof is substituted. But if the room is of good height tall plants can be grown in it very satisfactorily. The advantage of a glass roof is, you get light from above, as well as from the sides, and over-head light prevents your plants from being drawn toward the glass as they will be if no light reaches them from above.

The plant-room ought always to have a wide opening between it and whatever room it opens from, in order to afford the occupants of the dwelling a free view of the beauty we propose to put into it. This opening should be fitted with glazed doors, so that the plants can be shut off by themselves, when desired. This will be necessary in controlling temperature and regulating the moisture of the air. In rooms shut off from the view of the family much of the pleasure the plants are capable of giving is wasted, because they can not be seen unless a visit is made to the place. Where there is nothing to obstruct the view

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from living-room to plant-room, we seem to live among the flowers, and winter loses much of its usual dreariness because we have a bit of imprisoned summer constantly before us.

In such a room water can be used as freely as desirable without any fear of injury to carpets, curtains, or walls. By closing the doors between the room and the dwelling the temperature can be regulated to a nicety, and the air can be always kept moist enough to suit the plants inside. Insecticides can be used without the trouble of removing the plants to kitchen or bath-room. In short, the work of caring for one's plants is greatly lessened by having a special place for them. But the strongest argument in favor of the plant-room is—the facilities it affords for growing plants almost as well as they can be grown in the greenhouse proper.

Ventilation should be arranged for. I would suggest an outlet in the roof, made of six-inch pipe—of galvanized iron or tin—having a cap at its lower opening. If a stout spring runs from this cap well up into the pipe, it will be drawn tightly against the latter, as soon as tension is relaxed on the string by which you open it. This self-closing attachment prevents

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the admission of cold air from above, and confines the heat to the room at all times, when you do not deem it advisable to get rid of some of it. There should be openings below by which fresh air can be admitted. I would advise tin pipes, two inches across, running through the casings. These can be closed with a cap that fits snugly when outside air is not wanted. You will doubtless have use for all your ventilating attachments every day, for the facility with which fresh air can be supplied to rooms of this kind is one of the strong arguments in their favor.

To all flower-loving persons who are building a new home, let me give this advice. Plan for a plant-room. Never mind the bay-windows—which are almost always more ornamental than useful—but decide on having a place especially for plants.

XVII

SEEDLINGS IN THE HOUSE



WHILE the house-culture of plants grown from seed intended for outdoor use, may not be, in a strict sense, a phase of indoor gardening coming under the proper scope of a book of this kind, it may not be amiss to give it some consideration here, as nearly all women who love flowers undertake, at one time or another, to grow garden plants from seeds, with a view to securing early flowers.

This is generally done in March or April. Plants started earlier in the season will, nine times out of ten, be so weak and spindling by the time it is safe to put them into the ground that others, grown from seed sown in the garden beds as soon as the weather becomes sufficiently warm, will get the start of them. Indeed, most seedlings from very early sowing will be so lacking in vigor, by the coming of

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warm and settled weather, that they will be likely to fail utterly when subjected to the ordeal of transplanting and the change from indoors to out. It is only by giving them the very best of care that we succeed with them, and this care they seldom get because it must be made up of everyday attention to little things, which seem so insignificant that we generally fail to recognize the great importance of them, and, by so doing, come short of giving our plants the treatment they stand in need of at a very critical period of their existence.

Seed should be sown in shallow boxes rather than in pots. These boxes may be of any size most convenient for the window. They should not be more than three inches in depth. It is a good plan to make the bottom of zinc, perforated with small holes, and to put a layer of coarse, gritty sand in before filling with soil. This insures better drainage than is likely to result when the bottom of the box is of wood, as the latter will soon become so saturated with water that it will be more retentive of moisture than is desirable for the well-being of the delicate plants we attempt to grow. Zinc will allow all surplus water to pass off with great freedom. This may seem



AN ATTRACTIVE WINDOW

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an item of trifling importance, but it is not so. So many things, small in themselves, conspire to work harm to tender seedlings, that it is only by giving each one of them special attention that we can hope to attain success. It is just this attention to little things, favorable and unfavorable, that brings the desired result, bear in mind, you can not afford to forget.

The soil in which the seed is to be sown should be very fine and mellow, but not very rich, as richness encourages too rapid growth, and this is one of the things to be guarded against among seedlings.

Fill the boxes level full of the light soil and settle it by jarring. I would not advise making it any more compact than it will be with this treatment.

Then sow the seed *on the surface* of the soil, pressing it down with the bare hand. No covering is needed. Pressure will imbed it in the soil firmly enough to secure for it a sufficient amount of moisture to insure germination. I would not apply any water at this time, but it may be necessary to do so by the next day. Do not *pour* on any, but apply it from a pot having a fine nozzle. This will prevent washing of the soil, and distribute the

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application more evenly than is possible with a stream. Aim to keep the soil moist all through, all the time, but never go beyond the moist stage. Great harm can be done by the excessive use of water, under the impression that it is necessary to use a good deal in order to facilitate germination.

The boxes should be placed where they can have considerable heat, and kept there until the plants appear. Then put them in a window where the temperature can be kept at about 70° by day and 65° by night, and let there be as little variation as possible from these figures. Too much heat will force the plants, too much coolness will lower their vitality. Therefore both should be avoided as far as possible. Unless conditions are favorable to a control of temperature I would not advise attempting this phase of gardening, as much fluctuation of it almost invariably means failure.

Fresh air must be given the young plants, but they must be zealously kept from drafts. A slight chill often causes them to wither as if touched with frost. Admit air to them as advised in the chapter on the General Care of Plants.

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Keep them in the sun as much as possible, but temper it judiciously. During the middle of the day it may be necessary to drop a thin curtain between them and the glass. They need all the light they can get, however, and all the life-giving qualities of the sunshine, but we have to keep in mind the fact that our seedlings are baby plants and can not feed on strong meat, as yet.

As soon as the seedlings have grown their second set of leaves begin to thin them out, if too thick. Let them stand at least an inch apart. At this period there is much danger of "damping off." This is a term in use among gardeners to indicate a sort of general debility that attacks young plants, causing them to so weaken that they wilt, apparently from the effect of light. When this condition sets in there is really no help for them. The real cause of the trouble is lack of vital force, due, in most cases, to improper treatment, but frequently occurring from undiscoverable causes. Professional gardeners lose thousands of young plants every year from "damping off." The term naturally gives the impression that over-dampness has much to do with the disease, for such it really is, but this

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does not always explain the matter, We know, however, that over-watering greatly intensifies it, and that too much heat makes a bad matter worse. These, combined, doubtless do much to give it a start. This is one reason why water must be applied so carefully. Fresh air has much to do with preventing or checking it, and can not be given too freely, provided it is of the necessary temperature.

If the treatment outlined above is given from the start and adhered to, daily, it is not such a very difficult task to grow good plants from seed, in the house. But it will be seen that much more care is required by the seedlings than by the larger plants in the windows, and that this care is of a very painstaking nature. I do not say this to discourage any one from undertaking to grow her own seedlings, but I cannot conscientiously refrain from giving the facts in the case, on the principle that forewarned is forearmed.

When the young plants have outgrown the early period of their existence, modify the heat somewhat by giving them cooler places in the window. The aim should be to keep them going ahead all the time, but never so rapidly as to interfere with sturdy growth.

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Vigor of constitution stands for more than rapidity of development.

If the young plants seem to be too thick in the seed-box, it may be well to put them into small pots, singly. In lifting them from the box, proceed with great care, to avoid injuring their delicate roots. Never take hold of them by their tops, in removing them, but lift them from beneath by using a broad-bladed knife, or some similar tool, making sure to insert it below the roots. In this way enough soil will come up with each plant to prevent exposure of the root-system.

When you have the young plants thoroughly established in pots they will be under much better control than when in the seed-box. It is considerable trouble to pot them, but it pays to do so.

As soon as the weather will admit of it, put them out of doors during the middle of the day, in a place sheltered from the wind, but exposed to the sun. Be sure, however, to bring them inside before the temperature begins to fall.

Do not put them into the ground until it has become warm.

XVIII

GETTING READY FOR WINTER



WE do not mind drafts, and air-currents, and the liberal admission of cold air through cracks and crevices about windows and doors, and the floors, in spring and summer and early fall, but we must not forget the great difference between the temperature of those periods and that of winter. A small crack may let in cold enough, when the thermometer runs low and the wind is from the right quarter, to offset all the warmth sent out from a good-sized stove, after its drafts and dampers are adjusted for the night. If there are many such cracks and crevices, cold enough may come in to freeze our plants. Therefore, the thing to do is to go over our rooms carefully, and see that they are made proof against the admission of the enemy. And

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the time to do this is while the weather is pleasant, for much of the work may have to be done outside, and work done when the fingers tingle with cold is quite likely to be work poorly done.

Look to the window-sash. If you find panes loose, and putty cleaving away, have the glass reset.

Look to the framework of the window, and make sure that the sash fits it snugly. If it doesn't, see that it is made to do so. Tell whoever does your carpenter work that he must aim to close every point against the cold. This means snugly fitting joints as well as tightly fitting glass.

Examine the baseboards in the rooms where you propose to keep plants. They may *look* to be all right, but do not be satisfied with outside appearances. Light a candle and hold it where drafts, if there are any, can affect its flame. This will tell you where to have the work done. The carpenter, if he understands his business, will know just what to do to correct the faulty conditions. There may be as many drafts about the doors as there are about the windows. Generally there are more. Have them fitted with weather-strips.

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It is a most excellent plan to have storm-sash put on all the windows in the room. If this is done, and the outer sash is made to fit the frame well, and is held firmly in place by long screws that will prevent it from springing away from the wood it should hug tightly, your plants will not have to be moved away from the glass on cold nights, for the air-space between the two thicknesses of glass will act as a non-conductor of cold. It will be perfectly safe to leave your plants with their leaves against the glass of the window in the coldest weather.

All these precautions work together for the safety and well-being of your plants, and they pay for themselves by the fuel they save.

Examine the foundation-walls to make sure they have not cracked or crumbled in such a manner as to allow cold air to pass through readily. If any cracks are discovered, plaster them up. More cold comes into a room through its floors than most persons have any idea of, and the only way to keep it out is to keep the foundation-walls in perfect repair. If the house does not stand on a stone foundation, banking must be resorted to. Set up boards and fill in between them and the house

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with sawdust or dry soil. Before putting in either, it is well to nail two or three thicknesses of sheathing-paper over the inside boarding. Let it extend up over the lower six inches of the house-walls, fastening it in place by a strip of wood, or something that will hold it firmly and evenly against the clapboards.

Some reader of the above advice may say: "This doesn't fit in consistently with advice given elsewhere. If these instructions are followed, we would have an almost air-tight room in which to grow plants. He has had a good deal to say about the importance—the absolute necessity of fresh air. How can we reconcile the two theories?"

I propose to do so in this way. Have the tinner make you a pipe two inches across, and as long as your window is high. Let there be an elbow at the top, of the same size as the other pipe, and long enough to extend through the wall of the house. Then have your carpenter put the pipe in place by boring or cutting through the wall. The short length of pipe will project into the room. The long piece of pipe will extend down the wall on the outside. Leave this pipe open at the bottom. Have a cap fitted to the short piece reaching

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through the wall. Whenever this cap is removed, cold air will rush into the outer pipe and be discharged into the room, in great quantities, but its place of admission will be so far up the wall that it will come in contact with the warm air in the room, and all its chill will be lost, even in the coldest weather, before it reaches your plants. There should be a window on the opposite side of the room so arranged that it can be lowered from the top, or an outlet-pipe can be put through the wall there. Open the window or pipe when the inlet-pipe is in operation, and the foul, overheated air of the room will be driven out before the inrush of fresh air. In this way you can keep your plants supplied with all the fresh air they need, and, in doing so, you will be benefiting yourself. In ordinary weather both pipes can be left open and the air in the room will be constantly changing, therefore always comparatively pure, and vastly more healthful than the air in rooms not arranged for such a supply.

I am well aware that many of my readers may not feel able to afford the expense which some of the suggestions made above call for. But they can do a good deal in the way of

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protection for their plants without any expense whatever. Openings in the inside walls, and about the window-frames, can be closed by pasting strips of paper over them. A strip of bleached cotton cloth is better, however, as it is not so likely to peel off, and it will never crack, as paper often does. Make your paste good and smooth, by boiling it well, but do not have it very stiff.

The cracks along the floor, where the latter has settled away from the base-boards, can be closed snugly with a strip of concave moulding. This is narrow enough to be very flexible, and therefore it can be fitted tightly to the corner formed by floor and base. Be sure and use nails long enough to hold it securely in place.

Similar strips of moulding can be fitted to the angles formed by sash and frame, outside. Or, good results can be secured by laying strips of felting, or some thick cloth, over openings, and tacking on lath to hold them in place. This can be done inside, and the expense of the concave moulding advised can thereby be avoided, if one is not particular about the looks of the thing. The point to aim at is—exclusion of cold. It doesn't

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matter just how you exclude it, so long as you keep it out. If large pieces of plaster are broken from the walls, paste a square of cloth over them and allow it to get dry before you cover with paper. If snugly drawn when applied, it will be as smooth as a drum-head when dry, and no one would suspect a broken wall behind it.

XIX

HOW TO TREAT FROZEN PLANTS



IN spite of the carefulness with which the amateur gardener guards her plants against cold weather, they may be frozen on some night when the thermometer falls to the below-zero mark without any warning from the weather as to what its intentions are. If she could only know in advance of the change about to take place, she would fight back the frost-fiend, even if she had to sit up all night and keep the fires going to do it. But frequently these changes occur so suddenly that we are caught napping, in all senses of the word, and we get up in the morning to find the mischief done. Our plants may even then look all right, because of frost-stiffened leaves that have not, as yet, been subjected to warmth enough to cause them to wilt, and only exami-

HOW TO TREAT

nation will show the condition they are in. Touch a leaf and it will break like glass. Apply a little warmth, and the frost will be rapidly dissipated, and as a speedy result the leaf will become limp.

When such a discovery is made what shall be done?

Take the frozen plants into a *cool* room, *at once*. It is very important that the place to which they are removed shall be but little above the frost-point, because the change to which we propose to subject them must be as gradual as possible. Abrupt change almost invariably results in finishing the deadly work begun by the frost. Keep this in mind, and do not fail to take your unfortunate to cool quarters. And do this as promptly as possible. On no account wait for the temperature of the room to rise before doing it, as they must not be allowed to thaw out before restorative treatment is given.

When you have them in the cool room, shower them with *cold* water. Never use warm water, as I have known many persons to do, under the impression that it *must* be warm in order to draw out the frost. *Cold* water will extract it, and so gradually, in many

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instances, that a rupture of the cells of the plants is avoided. You will observe that everything except the removal of the plants, is to be done on the gradual system. Abruptness spoils everything.

Drench the plants. Use large quantities of water on them. Then pull down the shades, and close the doors upon them, and let them make an effort to regain former conditions in the quiet of a cold, dark room. But be sure it is not cold enough to freeze your plants. Test the temperature by the thermometer before you shut them in.

Subjected to such treatment, many plants that would be lost if allowed to remain in rooms where warmth would reach them, after a little, can be saved. The frost will be drawn to the surface without that rupture of the plant-cells which would result from the application of heat in any form, and, after a time, they recover from the shock, and show but little signs of having been subjected to so fierce an ordeal.

Leave them in the cool room for two or three days. Their return to the temperature of the living-room must be as gradual as was the extraction of the frost from them. Put them in a corner where they can be kept very quiet at first.

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Even if one succeed in saving frozen plants, it may be necessary to remove many of their branches. The action of frost is peculiar. One branch may be injured beyond any chance of recovery, while another, in close proximity, may be simply chilled. Look your plants over carefully, as they show signs of recovery, and remove all injured branches. This is necessary, for a branch which shows but slight injury may communicate its unhealthy condition to the rest of the plant, after a little, thus infecting it with the virus of a disease which means ultimate death. Never hesitate to prune, when you recognize the necessity for it, because you think it will give you an unsymmetrical plant. Better an ill-shaped one in a healthy condition than a symmetrical specimen in which the germs of disease are lurking. Lack of symmetry can be overcome by future training. Health is the matter of chiefest importance, first, last, and always.

Often the entire top of a plant will have to be cut away. When this happens, do not give up the plant as lost, for by and by new growth may be sent up from the roots. This is frequently the case when the action of frost was confined to the surface of the soil. The roots

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of the plant are not so likely to be injured as its branches, because the latter are more exposed. Therefore give the roots a chance to make an effort to perpetuate the existence of the plant of which they form a part, and wait patiently for such a result. Root-action is always slower than that of the above-ground growth.

If you do not happen to have a cool room to put your plants in when frozen the cellar is a very good substitute for it. I have frequently put frosted plants away in it, and left them to fight out the battle for life alone, and found, a few days later, that they had recovered almost as completely as those to which the treatment outlined above had been given. The low temperature, the darkness, and the gradual extraction of frost resulting therefrom had done the work in good shape.

XX

WINDOW AND VERANDA BOXES



HE window-box was at first designed to serve as a substitute, on a small scale, for the garden which many flower-loving women of the cities can not have. But the time has gone by for such narrow limitations of it. Nowadays the owner of a garden is not satisfied with flowers in the open ground. She must have them at the windows of her room, where they can be enjoyed at all times. The window-box has become a necessity. We see it everywhere. And quite often we see it in its most attractive form at the window of the humble home, while that at the window of the stately residence across the way lacks the beauty which is the result of good care and loving attention. For, the window-box, like the garden, will not take care of itself. Neglect it, leave



AN ATTRACTIVE PORCH



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the care of it to others who take little or no interest in it, and it will soon become an eyesore, rather than the "thing of beauty" which it can be made by proper management. Only those who love flowers well enough to be willing to give them personal attention should attempt the culture of them. Those who set out to have them because "it's the style," almost invariably fail of success with them, as they deserve to. Grow flowers because you love them, or do not grow them at all.

The fact remains, however, that many women who really love flowers fail to achieve success in window-box gardening. Sometimes failure is the result of an unwise selection of plants. But oftenest it comes from a lack of proper knowledge as to the conditions which prevail in this phase of gardening—conditions easily overcome when once clearly understood.

Because of the exposure of the window-box on all sides, moisture evaporates very rapidly from the soil in it. Those who are used to caring for plants grown in pots on the windowsill, are under the impression that a large application is not necessary for those in the box, therefore water is applied in limited quantity, and the result is that the soil *on the surface*

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seems moist enough, while examination would show that two or three inches below the surface it is really dry. In such a soil the roots of the plants can not flourish, and, as a natural consequence, failure, either complete or comparative, results. The misleading appearance of the surface-soil is the rock upon which nine out of ten window-box gardeners find shipwreck. When they give the matter careful consideration, and understand that it takes a good deal of water to thoroughly saturate all the soil contained in a box a foot wide and a foot deep, and as long as the window is wide, *then* they will understand the whys and wherefores of their failure. The fact is, every such box should be given at least a pailful of water daily, while nearly all get only a quart or two. You must keep all the soil moist, at all times, if you expect your plants to develop roots in it. Keep this in mind, and water accordingly, and there is no reason why just as healthy plants cannot be grown in a window-box as in the garden beds. To sum up—liberal watering is the secret of successful window-box gardening.

Not all plants are adapted to this phase of gardening. What is wanted is something that

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develops rapidly. If it is a flowering plant, it must be a profuse and constant bloomer. Many of our annuals are excellent for this purpose. The Petunia blooms freely, and throughout the entire season, if prevented from perfecting seed. Its flowers are rich in color, and its habit is all that can be desired, for it combines the characteristics of a standard plant with those of the vine. Planted at the edge of the box, it will soon droop and cover the sides of it, while the branches above will lift their flowers on stalks that seemingly never thought of drooping. The Nasturtium is another most excellent plant for window-box culture, provided the soil in which it is planted is only moderately rich. In a *very* rich soil this plant will make a rampant growth of branches, but there will be but few flowers. The Nasturtium, like the Petunia, has the combined merits of both upright and drooping habit.

The Fuchsia does wonderfully well in the window-box if not exposed to strong sunshine. An eastern exposure suits it best. The Geranium is a prime favorite. A combination of pink varieties with pale lavender Ageratum will be found very pleasing. For north windows Pansies will afford much pleasure. He-

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liotrope will make a most luxuriant growth in a sunny window. Blue Lobelia, white Candy-tuft, and Sweet Alyssum, are excellent to plant at the edge of the box, to droop. The best vines for this purpose are Tradescantia, German Ivy, Moneywort, Lysimachia, and Glechoma, all rapid growers.

Boxes filled with Coleus of contrasting colors are very attractive. When scarlet and yellow sorts are used, the effect will be as brilliant as that of many flowers. Scarlet Coleus, combined with the rich yellow Pyrethrum, "Golden Feather," is very effective. Gray Centaurea, better known as "Dusty Miller," can be used with Coleus or Pyrethrum, with charming results. Because of its spreading habit, it should be given a place at the edge of the box. The Coleus, being of upright habit, should occupy the center.

I last season saw a window-box filled with scarlet Salvia and the trailing Abutilon Eclipse. This Abutilon is of such slender habit that it is almost a vine, and it is most effective when given a chance to droop. Its foliage is of a rich green, blotched, spotted, and marbled with bright yellow. The sides of the box were completely hidden by it. In



PORCH BOX

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striking contrast with its green-and-gold variegation were the scarlet spikes of the *Salvia* above. Such a combination can be made extremely effective, with but little expense.

For sunless windows, such Ferns as the good old Boston and the feathery-fronded *Whitmani* will be found very satisfactory. The German Ivy can be used to droop over the sides of such a box, being equally at home in shade or sunshine.

Cannas, Dracenas, and other plants with striking or peculiar foliage can be used very effectively in window-box combinations. In fact, there are so many plants that can be grown in these boxes that all tastes can be satisfied.

It must be kept in mind that the large number of plants in these boxes will speedily exhaust the supply of nutriment in the soil. To keep them growing well throughout the season, it will be necessary to give frequent applications of some good fertilizer. Do not use enough to bring about a very rapid growth, for rapidity means weakness, as a general thing. Aim to secure a vigorous, healthy development, and be satisfied with that. If any branches seem to have exhausted themselves,

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remove them promptly. Allow no seed to form. Shower the plants well at night. It is well to apply water at night, for, if given in the morning the heat of the sun will help bring about a too rapid evaporation.

Window-boxes must be given very substantial support, because the amount of soil one of ordinary size contains will have great weight when wet. Not only should they be fastened firmly to the sill of the window, but they should be given additional security by bracing them well below.

Veranda-boxes are simply evolutions of the window-box idea. By the use of them, a veranda lacking the charm of vines can be made extremely attractive. Larger boxes can be used than at windows, and more plants can therefore be grown in them. Nowadays we often see second-story verandas and balconies completely screened in by vines grown in boxes standing on the floor, and the effect is very pleasing; especially so, from the room off which such a veranda opens, for it gives the impression of having transplanted a bit of the garden to the upper story, where it can be enjoyed at one's leisure. For screening-in a veranda, the Madeira Vine is a most excellent

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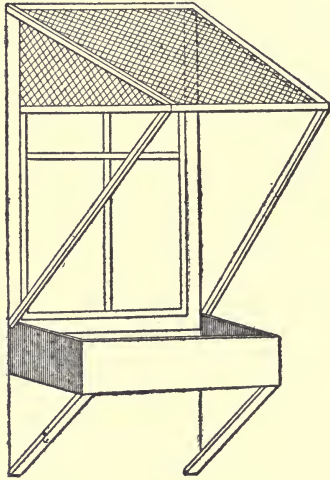
plant, being of very rapid growth, and having large, thick foliage. It can be trained on strings, or over woven-wire netting.

Plants in vases require about the same treatment as those in window-boxes. Because of their exposure, evaporation is always rapid, and therefore especial care must be taken to see that they are always well supplied with water.

To my mind, flowers at the sill only half carry out the possibilities of a window decoration. To the window-box I would add a framework for the upper part of the window over which vines could be trained in such a manner as to result in an awning, in which foliage and flowers take the place of unsightly canvas. This idea I have worked out to my own satisfaction, and for several years past my windows have been as attractive above as below. The framework of such an awning any one can easily make from strips of lath. Cover it with coarse-meshed wire netting. Fasten it to the top of the window, and support it with strips of wood, as shown in the accompanying diagram. Plant vines at the ends of the box, and train them up to the framework by strings. In a very short time they will cover it so thickly

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as to give all the shade needed, and the effect will be so pleasing that you will wonder how you were ever satisfied with such a hideous thing as the ordinary awning of gaudily-striped canvas. The annual Morning-Glory will be



found a most excellent vine for this purpose. The only fault to find with it is its too luxuriant growth, which will make it necessary for you to cut away a good many of its branches.

XXI. BEGONIAS



WHEN a plant enjoys the popularity which the Begonia can justly pride itself on, it may be set down as certain that it has many and very positive merits.

We find the favorite flower occupying a place only second to the Geranium in most window-gardens, and in many collections it is given the place of honor. Some grow it for its flowers, others for its foliage. Many sorts do not lay claim to any particular beauty so far as flower is concerned, but these have, as a general thing, such peculiar and strikingly beautiful foliage that the amateur florist is not content, after seeing well-grown specimens of them, until he becomes the owner of some of the most distinct varieties. Begonia-growing often becomes a fad with those who admire this plant, and often entire collections are made up of the representative types of the great Begonia family.

The impression formerly prevailed—indeed it prevails at present, to some extent—that inexperienced persons could not grow the *Begonia* satisfactorily. The impression is a wrong one. With the exception of the *Geranium*, I know of no plant the amateur florist can reasonably expect more success with, provided he understands something about the nature of the plant, and gives it the treatment it requires, as nearly as he can.

All *Begonias*, with the exception of the tuberous class, have fine, fibrous roots. The amateur florist who has kept his or her eyes open while acquiring experience among plants, will have learned that nearly all plants whose roots are fine and fibrous in character, and freely produced, like a rather spongy, porous soil—something they can penetrate easily, and which has a tendency to retain moisture without becoming heavy and compact, under repeated applications of water. Such a soil admirably suits the *Begonia*, while a soggy, compact soil does not suit it at all, though such is the adaptability of the plant that it will grow, after a fashion, in almost any kind of soil. This fashion, however, is one that the woman who really loves her plants will never be satisfied



HYBRID BEGONIA

BEGONIAS

with. To achieve the highest degree of success with the *Begonia* you must give it the soil best suited to its needs.

Leaf-mold from the woods—or its substitute of turfy matter—mixed with sharp, coarse sand until the entire mass is friable will grow fine plants.

All kinds of *Begonias* should be provided with the best of drainage. In a soil from which the surplus water cannot run away readily you cannot expect to grow fine specimens. Undue retention of water will very soon sour the soil, and if there is one thing the *Begonia* objects to more than another it is a soured soil to spread its roots in. It is not a semi-aquatic plant, as some persons seem to think. Between the two extremes of a wet and a dry soil it will do best in a dry one.

As a general rule, *Begonias* ought not to be exposed to strong sunshine. They like, and need, plenty of good light, but not the direct rays of the sun, except such as come to them from an eastern exposure. If you have only south windows to grow them in, give them a place in the rear of taller plants, where the heat of the sun will be greatly modified before it reaches them. Some of the white-flowered

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varieties flourish quite satisfactorily in northern windows if you have no better place for them.

Do not keep your Begonias far from the glass if the heat can be regulated as advised above. Light is necessary to bring out the color of flower and foliage well, and the light that a plant receives when standing at some distance from the glass is not sufficient to do this.

Most varieties grow readily from cuttings inserted in damp sand. Those which have a habit of sending up several stalks from a sort of crown can be propagated most effectively by division of the root. Each piece of root with an "eye," or growing point, will soon grow into a fine plant, with proper care.

Rex Begonias—the aristocrats of the family—can be grown from the leaf. Make several cuts across the midrib, at the back of the leaf. Press it down upon wet sand with something heavy enough to hold it in place, and in a short time roots will be sent out at the places where the knife was applied, and by and by leaves will appear. The leaf can then be cut apart, and the young plants potted. In handling plants propagated in this manner, be careful not to injure the extremely tender roots. Lift enough sand with the plant to make sure that

REN BEGONIAS AND FERNS



BEGONIAS

its roots will not be exposed, and drop it into the pot of soil prepared for it in advance. As soon as the fragile roots grow beyond the limit of the sand containing them they will take hold of the stronger soil with much more vigor than they would if they had been disturbed ever so little in removal.

To grow the larger sorts of *Begonia* well they must be given considerable root-room, unless fertilizers are used, as advised in the chapter treating on them.

In repotting do not shake the roots out of the old soil. Crumble away only as much of it as can be easily separated from the outside of the ball of earth. Repotting should be done during the summer or early in fall, in order to give the plants ample time in which to become fully established in their new quarters before the beginning of the winter season.

I am frequently asked what kinds I consider best for the amateur. If you want something that will grow into a large plant of spreading, upright habit, with very attractive foliage, there is no better variety than *Argentea guttata*. This variety has sharply pointed leaves of a rich olive green on the upper surface, thickly spotted with silvery white. The under side of

the leaf is a dull red. When looked at from the inside of the room, these colors show most strikingly, and a well-grown specimen is sure to be greatly admired. Many stalks are sent up, and as these often reach a length of three or four feet, it will readily be understood that a strong plant has great decorative merit. In addition to its rich foliage it has lovely flowers of a soft, pearly pink, fading to almost pure white. These are borne in large, drooping panicles. This variety is of such robust growth and strong constitution that any one can grow it well.

Rubra is an old variety, but still one of the best. It has very thick, dark green foliage, attractive in itself, and flowers of a bright coral-red, produced the year round in great profusion. This variety can truly be called an ever-bloomer. It grows to a height of four, five, and often six feet, branching freely. A fine specimen will often fill a large window if given plenty of elbow-room. It does not like to be crowded.

Weltoniensis is a summer flowering variety. Its leaves are of a rich, almost translucent green, veined with red. Its stalks are also red. Its flowers are a soft, bright pink, pro-

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duced in great profusion, It is not easy to imagine anything more beautiful than a well-grown plant of this kind in full bloom.

Manicata aurea is one of the most beautiful of all variegated plants. Its leaves, which are very large, and of a thick, waxy texture, are irregularly blotched and splashed with creamy white and soft yellow on a rich, dark green ground. Often tints of pink and red show among the other colors. This variety has a most peculiar habit of growth. When young, and small, the plants generally are upright, but after a little they send out crooked, gnarly branches which droop over the pot and twine about it and themselves in snake-like fashion. So suggestive of snakes are they that they would be positively unpleasant to look at if naked, but they are almost completely hidden by their luxuriant foliage. This sort blooms profusely in spring, throwing up great, spreading panicles of small pink flowers in such quantities that they often cover the foliage like a veil.

Speculata is a hybrid between the Rex and the tall-growing classes. It has the foliage of the former and the habit of the latter. Its large leaves are shaped like those of the Grape, with sharp points. They appear green when

seen in some lights, but on closer examination the green seems to be underlaid with chocolate, against which veins of pea-green stand out prominently, with silver spots thickly scattered over the surface. On account of its changeable color when viewed in different positions, it is a most attractive plant.

Gigantea is one of our best bracket plants. It has enormous foliage of a dark reddish green, borne on stalks often three feet in length. If the bracket on which the plant is grown is placed well up the wall, the foliage will droop in rugged grace, and show to the best effect. If kept on the window-sill it is not satisfactory, its habit of growth not being adapted to such a position.

Gloire de Sceaux is a variety of late introduction. Its leaf is a dark bronze above, with brownish red below. The foliage is almost round, and quite as large as that of most Rex Begonias. It blooms with remarkable profusion from January to May, its flowers being borne in sprays. In color they are a deep pink. Whether in bloom or out of bloom it makes a most charming house-plant.

Gloire de Lorraine is a comparatively new variety, and represents a class quite distinct

BEGONIA CLOIRE DE LORRAINE



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from anything heretofore grown. Though having been recently introduced, it has already taken the flower-loving public by storm. No plant of which I have any knowledge has made such a rapid leap into popularity, and its popularity is richly deserved. It does not make a plant of large size, but it bears so many flowers that each plant seems a great bouquet of soft, rich carmine bloom, this color often fading to delicate rose. Because of its peculiar habit during the early stages of its growth it is not adapted to amateur culture during the year, but should be procured of the florists in October, when wanted for winter flowering.

The above list contains only a few of the most desirable varieties. By consulting the catalogues of the florists you will find many other charming kinds described there, all of which are good.

Complaint is frequently made that plants drop their foliage. This behavior is to be accounted for in nearly every case by one of three things: Too much water at the roots, too little water, and abrupt change of conditions, as from out to indoors in fall, or from the greenhouse where the air is moist to the living-room where it is likely to be quite dry. Trace the

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difficulty back to its cause by careful observation, and give that corrective treatment which a discovery of the cause of trouble will readily suggest. In the first instance either better drainage or less water, in the second regularity of watering, and in the third more moisture in the air and the avoidance of abrupt changes of temperature.

Since the above was written I have received a very interesting letter from a lady who tells me how she grows her Begonias. She sets her plants in the ground in May, in their pots. Old ones are cut down, and new ones grown from the branches cut off. If the pots are filled with roots the plants are shifted to large pots. They are left out of doors until October when she returns to the city. Then she lifts them and places them in sunny windows with lace curtains between them and the glass. The first part of the season she feeds her plants well. The latter part of it she gives only water. Her plants are the wonder of the professional florist.

From what this correspondent writes some readers of "Indoor Gardening" may gain some pointers which will be of benefit to them in their culture of this popular plant.

XXII. THE FUCHSIA



HERE is no more popular plant for culture in the window-garden than the Fuchsia, and yet we seldom see it grown well there. Generally it is a scraggly, sprawling specimen, with few branches and inferior flowers. As usually grown, it is far from being a satisfactory plant, but there is no reason why such should be the case if the grower will give it the care it requires. One reason why it fails to give better satisfaction is—it is a misunderstood plant. An impression prevails that it is a winter-bloomer, and because of this it is neglected in summer, being held in reserve for winter work. When winter comes, and flowers are expected from it, it fails to meet the expectations of the grower, and it is blamed for misbehavior. The explanation of its failure is this: It is *not* a winter-bloomer, with the exception of two or three varieties. These varieties are not as showy as others, and they are not

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extensively grown, and therefore the amateur in her search for brilliant flowers is pretty sure to select the kinds that will not bloom in winter. Get rid of the idea that the Fuchsia is a winter-flowering plant (with the exceptions noted) and give it a treatment that will enable it to do itself justice during the summer months. As a summer-bloomer it is in no way inferior to the Geranium, except, perhaps, in point of brilliance. It lacks those glowing scarlets and vermilions that make the Geranium bed so dazzlingly bright, but what it lacks in this respect it makes up in its profusion of bloom and gracefulness of habit. The Geranium, as ordinarily grown, is not a plant remarkable for grace, but the Fuchsia, if allowed to follow out its own instincts, is grace, beauty, and luxuriance in a delightful combination.

As an out-of-door bloomer it is not a success, unless it can be given a shady and sheltered location. It does not take kindly to hot sunshine, and strong winds play havoc with its brittle branches. It is in the house or greenhouse that it displays its beauty most effectively. For summer use I consider it one of our very best plants.

If the plant with which you start out in

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spring is a young one it will not require a large pot during the earlier stages of its growth. But as its roots fill the soil in its old pot, it must be shifted to a larger pot. If a young plant is allowed to remain for some time in a pot too small for it, it receives a check from which it will be a long time in recovering—so long, in fact, in the majority of cases, that but little can be expected from it during the remainder of the season. One secret of successful Fuchsia-growing is to keep the plants moving steadily ahead from start to finish. That is, for the first season. After they are a year old, and you have them in large pots, it will only be necessary to give fresh earth in spring, depending on fertilizers for the nutriment needed during the rest of the season.

In my experience young plants have never been as satisfactory when grown on fertilizers as when given rich soil only. The explanation probably is that the young roots are not in proper condition to make use of very rich and concentrated food. Later on they will be able to digest it.

The best soil for the Fuchsia is one made up largely of leaf-mold, or its substitute—turfy matter, sharp sand, and just enough loam to

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give it a little more body than it would have were this left out. It should be light, friable, and porous.

The best of drainage must be provided. While the Fuchsia is fond of considerable water at its roots, it does not like to stand in a soil so wet that it is little better than mud. See to it, therefore, that at least two inches of drainage material goes into every eight or nine-inch pot. Let a plant get really dry and it will drop its leaves and buds. Make it a rule to water your plants daily.

The Fuchsia is almost as fond of water on its foliage as at its roots. You cannot grow it to perfection unless frequent showerings are given. If one has a florist's syringe—something every amateur should have—water is easily thrown all over the plant. The application of water, especially to the under side of the leaves, will be of great benefit in keeping down one of its enemies, the red spider. If sufficient moisture is not provided for its foliage, this pest frequently injures the plant to such an extent that its buds and leaves drop, precisely as when it has been allowed to get dry at its roots. Shedding of buds and foliage is almost always due to one or the other of these causes.

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The Fuchsia is, comparatively speaking, a shade-loving plant. It does best in a window with eastern exposure. Exposed to hot sunshine it will soon dwindle into insignificance, and general ill-health will set in.

There are as many ways of training the Fuchsia as there are individual tastes. I have seen it trained to a prim trellis, with every branch tied up, making it look as uncomfortable and awkward as the traditional small boy in Sunday clothes. Others give it a row of sticks about the pot, around which a fence of twine is constructed, outside of which no branches are allowed to grow, making it simply ridiculous. The only satisfactory manner in which this plant can be trained is to study the habit of each variety and allow it to follow out its natural instincts, giving it only such assistance as seems absolutely necessary. Give it a central support, and let its branches droop. That is successful Fuchsia-training in a nutshell. Treated in this way, a healthy plant will be a mass of foliage from the pot up, with a profusion of graceful branches, each one terminated with buds and flowers.

Few varieties are strong enough to get along well without a central support. A rod of iron

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is better than a stick, because a well-developed plant will have a very heavy top, and as a stake soon becomes rotten when inserted in damp soil, there is great danger of the plant being broken in moving it about. Be on the safe side, and provide a support that will not fail you at the time when needed most. Tie the main stalk of the plant to it, as it goes up, and let every branch take care of itself. Rather than insult a Fuchsia of dropping habit by tying its branches into unnatural positions—positions it would never think of taking if left to itself—I would forego the cultivation of it altogether.

Some varieties of the Fuchsia are naturally upright in habit. Rose of Castile—white and violet—and Black Prince—carmine and coral—are types of this class. Were it not for the precaution taken against accident in moving the plants, no support would be required by these varieties.

Other varieties, like Convent Garden White—ivory white sepals and rose-colored corolla,—and Speciosa—carmine and pink,—are very strong, rampant growers, and can be trained to the top of a window, if desired, provided sufficient support is furnished. For these I would advise a rod of iron, in which holes have

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been made at intervals a foot apart. Through these holes run a stout wire, weaving it about in such a manner as to form arms reaching out in all directions. These will give the slender branches all the support they need, and no tying will be required. Trained in this way a plant is a most beautiful sight when in full bloom. The difference between a Fuchsia properly trained and one trained in a formal and artificial manner can only be understood fully by seeing a specimen of each side by side.

We have single Fuchsias and double ones. Some of the double kinds—like Elm City and Phenomenal—have corollas almost as large as small Roses, and quite as double. Personally, I prefer the single kinds, considering them more graceful. This, however, is simply a matter of taste. Both kinds are worth a place in all collections.

It is not necessary, as some persons seem to think, to grow young plants each season. Young plants may excel older ones in vigor, but they will not give as many flowers, and they lack the dignity of larger plants. I prefer two and three-year-old Fuchsias to younger ones for the same reasons that I prefer old Geraniums to young ones for winter use—the

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more branches there are the more flowering-points your plant has.

If your plants do not seem to be making as strong a growth as you think they ought, apply a good fertilizer once a week until they reach the vigor you demand of them. They will stand feeding better than most plants.

In the fall, when flowering ceases, give less water than you have been giving throughout the season, and let the plant get ready for cold storage. Put it in the cellar in November, and leave it there until March. Never mind if it drops its leaves. The plant will not be injured by losing them. Aim to keep it as nearly dormant as possible while it is resting. When you bring it up in March, water it well and place it in the light. It will soon start into growth. Then—and not till then—go over the plant and cut it back severely. Cut away at least one half its old branches. Keep in mind the fact that flowers will only be produced on new growth, also that severe pruning induces the formation of many new and vigorous branches, and you want as many as possible of these. At this time fresh earth can be given. Pruning should be deferred until growth sets in, in order to know what branches it is safe to cut back.

XXIII. THE GERANIUM



WE are told that the Geranium is becoming so "common" that many who like to be exclusive in all matters pertaining to themselves, do not care to grow it.

I am glad of this, because the plant is too good a one to waste its attractions on such a desert air. It should only be grown by those who have a just appreciation of its merits. Those who like beauty for beauty's sake, and not because some snobbish person condescends to set the seal of his or her approval on it, will never turn the cold shoulder toward the Geranium. The criticism that it is "common" is a compliment to it, for it means that it is so accommodating in its habits that it adapts itself to widely varying conditions, and will do as well for the amateur as for the professional, that it flourishes as finely in the humble home as in the dwellings of the rich, and makes itself a blessing where the

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flowers of the aristocrat would languish and die—in brief, that it is everybody's flower. The more such "common" flowers we have the better. A well-grown specimen of a fine variety—and we have so many superior kinds nowadays that no one is excusable in growing an inferior variety—is equal to the task of making the window a thing of beauty from December to May, and this with very little trouble on the part of the grower. Simply give it a soil of loam, with some sand mixed in, a moderate amount of water, plenty of sunshine, and freedom from frost, and it will ask but little else at your hands. Insects seldom trouble it. Diseases rarely attack it. It is, in short, an ideal plant for the amateur.

The old type of Geranium had narrow petals, and its individual flowers were consequently not very attractive. The cluster was depended on for show, rather than the single flower. But the florists took the plant in hand, and they have worked wonders with it. We now have varieties with flowers nearly two inches across, and petals so wide that they overlap each other, like those of the Pansy, thus giving us a blossom that is far more showy in itself than the old-time cluster, made up of



MADAM SALLEROI GERANIUM

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many small flowers, ever was. And as for color, nothing in all the plant-world excels it. Such intense scarlets, such rich crimsons, such glowing vermilions, such pure pinks and delicate salmons are found in no other flower. Which is finest is simply a matter of taste.

A large plant—and the Geranium can be grown to considerable size—in perfect health, and full of bloom, is a sight to gladden the eye of the flower-lover. If it has been properly trained, it will have many branches, and there will be flowers on every branch, with buds showing between the new leaves unfolding at the branch's extremity. To secure such a plant one must begin to train it while it is young. As soon as it has made three or four inches of growth, nip off the top of it. This will cause branches to start along the stalk. Let these grow to be three or four inches long, and then give *them* a nipping. By keeping up this treatment you secure a plant that is bushy and compact—never “leggy” and awkward, like the average Geranium that has been allowed to grow without any attention. Let a plant train itself and it will generally go up, up, up, in one long stalk, having but few flowers. It could not be expected to have many, as it is

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the habit of this plant to bloom only on its new growth; therefore there will be but one truss of bloom to a branch at a time, and the plant that has few branches is limited in its capacity for flower-production. The necessity for keeping up branch-production until the foundation of a good flowering plant is formed will therefore be readily understood.

The owner of a Geranium ought not to lose sight of the fact that proper training should be given while the plant is developing. You cannot take it in hand, after it has been growing for a year or more to suit itself, and make a satisfactory plant of it. With many other plants this can be done, but the Geranium is not tractable enough for that. It must be trained as it goes along.

The idea seems to prevail extensively that only young plants are desirable for winter flowering. Such is not the case. Young plants are good, as far as they go, but—they don't go far enough. In other words, they haven't enough branches to give the effect this plant is capable of when at its best. Plants two, three, and four years old are far superior to young ones for winter use. This is because of their many branches, which means greater flowering

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capacity. An old plant will have all the vigor of a young one if fed well. You can cut it back, in spring, leaving nothing but a skeleton, and by fall it will have sent out scores of branches, and completely renewed itself. Never throw aside your old plants for young ones until they have become too large for your windows.

We have double Geraniums and single ones. Personally I prefer the single sorts, because of the beauty of the individual flowers. Among the doubles individuality is largely lost sight of in the crowded condition of the truss.

Where there are so many superb varieties to choose from the amateur will find it difficult to make a selection. I will give a list of some of the most distinct sorts:

Granville.—Rose-pink. Large, fine flower. The best of its class.

Wm. Cullen Bryant.—Rich scarlet. Very large, circular flower. Extra fine.

Athlete.—Vermilion. A grand variety.

Mary Hallock Foote.—Large white flower, suffused with salmon rose. Exquisite.

Apple Blossom.—Pale, delicate pink. A lovely variety.

Mrs. E. G. Hill. Rosy salmon, large and fine.

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The above are all single kinds.

Among the best double varieties I would name:

S. A. Nutt.—Rich, dark crimson. Very free bloomer.

Banquise.—Pure white.

Jamaïque.—Crimson-cerise.

I want to say a good word for two old favorites of the family, now greatly neglected. These are the Rose and Skeleton Leaved varieties. They are so delightfully fragrant that everyone having a collection of window-plants ought to grow them. A few of their leaves add a charm to flowers that are lacking in fragrance. Because of their beauty as well as fragrance they are excellent in making up corsage and button-hole bouquets. The odor of the Rose is pleasantest, but the Skeleton Leaf has the most beautiful foliage. Both varieties are of the easiest culture. They can easily be grown from cuttings, as can all Geraniums. Put them in the sand-box, as advised in the chapter on the Propagation of Plants, and not one cutting out of fifty will fail to grow.

Flowering Geraniums do best when kept in pots of moderate size, but those grown for their foliage should be given more root-room.

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These can be trained into miniature trees with but little trouble.

Geraniums that have bloomed throughout the winter, and are intended for use another season, should not be allowed to blossom in summer. Let them rest from May to November. Cut them back sharply, to encourage the development of new, strong branches, and nip out every bud as soon as you discover it.

I would advise the liberal use of the Madame Salleron Geranium in all window-collections. This variety has a great profusion of green and white foliage, and grows in rounded, compact shape without any training whatever. It forms plants twelve to fifteen inches across, and not more than eight or nine inches high, with such quantities of foliage that the pot containing it is literally hidden. Not a branch can be seen—simply a mass of lovely foliage quite as attractive in its variegation as many flowers are. These plants will be found extremely useful for all kinds of decorative work. In spring they can be broken apart, each bit of branch making a good cutting, and used to make a border for beds in the garden. Set the cuttings in the ground where they are to grow during the summer, about eight inches apart.

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In six weeks' time they will have grown together, forming a row of beautiful foliage which will harmonize with any plant you choose to use with it. I consider it our very best border or edging plant. This because of its beauty, the ease with which it can be grown and its symmetrical habit.

XXIV

THE CHRYSANTHEMUM



THE Chrysanthemum is, next to the Geranium, the most popular flower of the present day, without doubt. Its popularity was a sort of fad at the beginning, when the florists exhibited blossoms nearly a foot across, but the flower has won its way to the friendship of flower-loving people everywhere by its many merits, and we continue to grow it from more commendable motives than those which actuated us to its cultivation at the beginning of its career. It is a flower that appeals to all classes, because of its wonderful range of color, its beauty of form, and the ease with which it is grown. Also because it comes to us at a time when we have few other flowers in the window. Coming, as it does, in October and November, it has pretty nearly everything its own way.

Let it be understood, in the first place, that the Chrysanthemum is a plant requiring a

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great deal of nutriment if we would enable it to do its best. It is really a vegetable gourmand. Therefore a soil of only ordinary fertility is not the kind to grow it in if we would grow it to perfection. Old barnyard manure is excellent as the basis of the compost you give it. If this is not readily obtainable, use bone-meal as a substitute. Get the finely ground article, and use in the proportion of a teacupful to a half bushel of loam, for the early stages of its growth. Later on, as development increases, it will be well to give a liquid fertilizer, and to give it at least once a week. This, given at the right time, produces large flowers and great quantities of them. Mix some sand with the loam, and see that each pot has good drainage.

In the second place it must be borne in mind that the Chrysanthemum is a plant that likes a good deal of water while making active growth. It not only *likes* it, but it *must have it* if it is to give complete satisfaction. Often, during the hottest weather of summer, it will require two applications every twenty-four hours—one at evening, and the other in the forenoon of the following day. On no account must it be allowed to get dry at its roots. If

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this happens, the plant will receive a check which will cripple it for the entire season. Therefore be sure to keep it always moist at the root. In applying water use enough to thoroughly saturate all the soil in the pot. Use so much that some runs off through the hole in its bottom. If this is done you will know that you are giving the plant all the water it needs.

It also likes a good deal of root-room. If kept in small pots too long, it will become pot-bound, and this will give it a check as harmful as that resulting from an insufficient supply of water. It is advisable to start young plants off in three-inch pots. As soon as their roots fill pots of this size, shift to six-inch ones. This ought to bring them to the middle of July. Then give another shift—this time to nine or ten-inch pots. In these pots they can be allowed to bloom.

The above advice is given on the assumption that your plants are kept in pots throughout the season. Many advocate planting them in the open ground in June and leaving them there until about the first of September. This method does away with a good deal of labor, as plants so treated will take care of them-

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selves in fairly good shape if given all the food they need to bring about satisfactory development. They will make a stronger growth than those kept in pots. But I would not advise this method of summer culture, because we will be obliged to lift and pot the plants before frost comes, and at the very time when buds are forming. No matter how carefully this work is done, the roots of the plants will be disturbed to a considerable extent, and any such disturbance, at so critical a period, will seriously interfere with the satisfactory development of the flowers. In lifting and potting the plants many of the strongest roots will have to be cut away, and in proportion to the loss of roots we must remove some of the branches. Therefore it will be readily understood that we gain nothing, in the long run, by turning our plants out to take care of themselves during the summer. In reality we lose by it, for we are likely to get a crop of inferior flowers from plants that have been disturbed at the time when everything ought to be made as favorable as possible for them.

A veranda with an eastern exposure is a good place in which to keep pot-grown Chrysanthemums during summer. The plant-shed

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of which I have spoken in another chapter is a better place for them.

Be sure they get plenty of air. Shower them all over daily. This will have a tendency to keep the red spider from working on them. If the aphid attacks them, as he probably will, apply Nicotocid as advised in the chapter on The Insect Enemies of Plants. Sometimes a black beetle appears on them very suddenly, and makes sad havoc with them in a short time. Be on the lookout for this pest. If discovered, apply the kerosene emulsion advised in the chapter mentioned above. Be prompt in its use, or the beetle will have done its deadly work and gone his way before you have begun your fight against him.

The Chrysanthemum is one of the most tractable of all plants. You can grow it as a bush or small shrub, or you can train it as a tree. You will find directions for both methods in the chapter on the Pruning and Training of plants.

It is a good plan to leave your plants out of doors as long as it is safe to do so. Slight frosts will not be likely to injure them, but it is well to be on the safe side, and give them a little protection when the nights begin to have a chill

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to them. A paper or a sheet thrown over them will be quite sufficient. But when the weather has a hint of freezing in it, take the plants indoors.

When they are brought into the house give them a room that is without fire-heat if possible. This will force them into weak and rapid development, and the flowers they furnish will be short-lived. You can make them last for at least a month longer if you keep them in a cool room. At no time after they are brought into the house will they require artificial heat, as they will have completed their flowering and be ready for the cellar before cold weather sets in.

If you decide to grow your plants in the garden beds during summer, be sure to lift and pot them early in September. The week before doing this cut about each plant with a sharp spade, leaving enough soil (as nearly as you can estimate it) inside the cut to fit the pot into which the plant is to go. Water well on the morning of lifting-day to prevent the soil from crumbling away and exposing the roots.

After the flowering-season is over cut away the entire top of the plant and place the pot

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containing the roots in the cellar. Treat it while there as directed in the chapter on wintering plants in the cellar.

In March the plants can be brought to the light. In a short time young shoots will appear all over the surface of the soil. When these have grown to be about three inches tall cut them away from the old plant in such a manner that each has a bit of root attached and put them into small pots.

I would not advise the disbudding process. Florists practise this with a view to securing enormous flowers for exhibition purposes. All but the crown bud is removed from each branch left on the plant. A larger number of medium-sized flowers will be found vastly more pleasing than a blossom so large that it seems a floral monstrosity.

Always keep your Chrysanthemums well staked, as they are very easily broken, their stalks being extremely brittle.

I shall not name any special varieties for the amateur to experiment with. A consultation of the catalogues of the florist will give you a long list to select from.

XXV

ROSES AND ABUTILONS



WHILE the Rose is much more difficult to grow well in the living-room, than most other plants, women who love flowers will attempt its culture, because one fine blossom amply rewards them for a great deal of labor expended in securing it. Perhaps because of the difficulties which have to be overcome in its culture we appreciate it all the more.

Many failures are due to the selection of varieties entirely unsuited to culture in the house. There are but few adapted to the conditions which prevail there, and if we go outside this list we need not expect success.

One of the best Roses for the house is Agrippina, an old and standard variety. It is a rich dark crimson in color, not very large, but quite fragrant. Another is Queen's Scarlet, very similar to Agrippina in color, but of stronger

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habit. These are the only two dark Roses I would advise the amateur to make use of.

Hermosa is a clear, bright pink, quite double and a free bloomer. It has very little fragrance, but what it lacks in this respect it makes up for in the number of its flowers.

Clothilde Soupert is a member of the *polyantha* class of the family. I consider this really the best of all Roses for the living-room. It is strong in habit, producing a large number of branches, each of which often bears a dozen or more flowers. These are of a soft rose color, on first opening, deepening to bright carmine at the center. After a little the outside petals fade to almost white. The flower is not very large, but it is very double, and because of the plant's habit of blooming in clusters, it is very effective. This variety will succeed where all others fail, and therefore I have no hesitancy in pronouncing it *the* Rose for the amateur.

There is but one of the hybrid teas that does even fairly well under average amateur treatment. That is La France. If two-year-old plants are procured in spring and grown on well during summer, in pots, they will be likely to give some fine flowers during the winter. Not many, perhaps, but so exquisitely beautiful is

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this Rose, so deliciously fragrant, that one good flower from it is worth a score of inferior ones.

To grow the Rose well give it a soil of rather heavy loam. It does not have many roots. These are quite large, and it likes to have the soil firm about them. Because of this it does not do well in a soil that is light and spongy. Pot a Rose loosely and it will live on indefinitely, but you will not be likely to get a blossom from it. The loam should be made rich by the addition of well-rotted cow-manure, or bone-meal. Not very large pots will be needed if fertilizers are to be used.

The Rose blooms only on new branches, and therefore such treatment must be given as will result in the production of these. Feed the plant generously to keep up constant growth. When all the buds on a branch have developed into flowers, cut it back to within an eye or two of the main stalk. Soon new branches will start from these points, and these will bear a crop of flowers. In this way, by sharp pruning and liberal feeding, we keep the plants making growth, and growth, as a general thing, means blossoms.

The Rose is subject to attacks of the aphids. The remedy is Nicotocide.

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Red spider is also likely to take up its quarters on it. Remedy, dip-baths and frequent showerings.

It is sometimes attacked by mildew. Remedy, freedom from all cold drafts, and flowers of sulphur sprinkled over the plant while slightly damp.

In summer, encourage your plants to rest. Water moderately, and give no fertilizers. Cut away most of the old growth. In October or November give more water, and weak applications of fertilizer, increasing the amount as growth sets in.

The Rose must have a sunny window to grow in. It will surely disappoint you if kept in any other.

THE ABUTILON

This is one of the old stand-bys—a plant deserving a place in every collection. This for several reasons: It is of easy culture; it is a free bloomer; it is a really beautiful plant, and insects seldom attack it.

The Abutilon is more commonly known as Flowering Maple, because of the resemblance of its foliage to that of our native Maple. It is sometimes called the Chinese Bell-flower,

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because of its pendant, bell-shaped blossoms and the fact that it is of Chinese origin. There are several excellent varieties, ranging in color from white, through pink, yellow, and orange, to dark red. Its blossoms are borne on long, slender stalks, and are very graceful because of their pendant habit.

The plant is most effective when trained in tree form.

Give it a soil of rich loam, a moderate amount of water, and good light.

There are several varieties having variegated foliage of great beauty. One of these is *Savitzii*. Its leaves are so broadly margined with white that, at a little distance, it resembles a plant almost covered with white flowers. It is one of our best ornamental foliaged plants for amateur culture. Another charming variety is Eclipse. This is of slender, almost trailing habit, and is most effective when grown on brackets, where it can be allowed to droop. Its foliage, which is long, and pointed, shows a mosaic-like variegation of yellow and light green on a dark green ground. A strikingly beautiful plant, when well grown.

XXVI. PALM-CULTURE



VERY woman who likes plants thinks she must try her skill at Palm-growing, because every other woman in the neighborhood is doing so. Sometimes the result is very satisfactory.

Oftener, I am sorry to say, it is just the contrary.

I know of nothing less attractive than one of these plants when it becomes unhealthy. When a woman tells me that her Palm is diseased I generally advise her to throw it away and get a new one, and begin all over again. I do this because it is almost impossible to make a presentable specimen of the old one. A florist might be able to do, after a time, but life is too short for *her* to undertake the work of rejuvenation. The only way for the amateur to have good Palms is to obtain healthy plants and give them a treatment that will *keep* them healthy.

“The tips of the leaves are turning brown

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and drying up," one writes. "What's wrong?"

Nine times out of ten the trouble comes from too much water at the roots. This may originate in defective drainage, or it may come from keeping the pot in a jardiniere with two or three inches of water in it. If a jardiniere is to be used, be sure to place a brick or something similar in it for the pot to stand on—something that will raise the pot above the water that runs through it. Palms are not aquatics, as some seem to think.

It may be that the leaves turn brown because of a diseased condition of the roots. Turn the ball of earth out of the pot and ascertain the condition the roots are in. If they are white their entire length, well and good. If brown at their ends you may know that there is something wrong with them. Either drainage is defective, or you have allowed the soil to become dry. The remedy, in case of defective drainage, is to make good the mistake. In the second it is to water your plant regularly. Attention to these matters when the first symptoms of trouble are seen may avert serious consequences.

Then—keeping the plant too far from the light may have something to do with it. In

PALM - CULTURE

order to keep any plant in a healthy condition it must have plenty of light, though sunshine is not necessary to the health of such plants as the Palm. If a plant is kept for some time in a shady place it not only suffers from lack of light, but its soil becomes sour because evaporation of moisture does not take place as rapidly as it ought to. A sour soil soon brings on a diseased condition of the entire root-system. Therefore never allow your Palms to remain away from a good, strong light for more than a day or two at a time. As soon as they have done decorative duty at some social function remove them to a place where they will get the benefit of the light they need.

“I suppose my Palm needs repotting. Its roots lift the plant above the soil. How large a pot ought it to have?”

If your plant seems healthy, let it alone. Much harm is done by repotting when repotting is unnecessary. The fact that a plant is lifted above the soil by its roots does not indicate the need of more root-room. It is characteristic of the plant to grow in that way. So long as it keeps making two or three new leaves yearly, and these are as good as its earlier ones, do not think of shifting it. The fact is, the

PALM - CULTURE

Palm does not require as large a pot as most persons think. For plants with six or seven large leaves, three or four feet tall, an eight or nine-inch pot is quite large enough. The writer has two specimens of "made-up" Palms—three plants growing together as if they were one—in nine-inch pots, and they are as healthy as Palms can well be, and are constantly developing new leaves. I feed them with frequent applications of fertilizer—either liquid, or in the shape of fine bone-meal—rather than by putting them into fresh earth every year. This does away with all disturbance of their roots and answers all purposes perfectly.

So long as any plant gets all the food it requires it is not very particular how it gets it. It is not only easier, but safer, to give it in the form of an application such as I have advised than it is to repot with the risk of injuring the roots. If repotting *is* done, do not attempt to remove the old soil or to loosen the roots in any way. Simply slip the plant out of its old pot, set it in the new one, and fill in about it with fresh earth, providing, of course, for good drainage. Do not attempt to crowd the fresh earth down with a stick, for by doing that you



FAN PALM
(*Latania Borbonica*)

PALM - CULTURE

might bruise some of the tender roots on the outside of the ball of earth. Settle it compactly by watering,

“What soil is best for the Palm?”

Garden loam, into which some coarse sand is mixed. I would advise mixing some bone-meal with it—say a teacupful to a half bushel of soil. After three months it may be advisable to add a spoonful occasionally, working it well into the soil about the plant.

“What kind of Palm would you advise for amateur culture?”

The best kind for the amateur, all things considered, I believe to be *Kentia Belmoreana*. Almost as good is *Kentia Fosteriana*. These are of strong and dignified growth, with a wide spread of foliage, and develop into fine specimen plants, in two or three years.

If a plant of spreading habit, but comparatively low growth, is preferred, *Latania Borbonica*,—the “Fan Palm”—is an excellent variety.

Phoenix reclinata has a somewhat spreading habit, with leaves something like those of the *Kentias*, but its thorny characteristics make it rather unpleasant to handle.

Chamærops excelsa is a very strong and

PALM - CULTURE

sturdy sort, with leaves shaped like those of *L. Borbonica*, but smaller, borne on long stalks. This is a very graceful variety, and one not commonly grown. It throws out shoots at its base, and these give plenty of foliage at a point where most Palms show simply a naked stalk. All of these can be grown satisfactorily by the amateur who will follow the directions I have given.

“Would you advise showering Palms?”

Certainly—the oftener the better.

“How long must one wait for the small plants sent out by dealers to develop into good-sized specimens?”

All depends so much upon conditions that the question is a hard one to answer. It must be borne in mind that the Palm is a comparatively slow grower. If it makes three new leaves in a year it will be doing well. Perhaps most plants make less than that. It will be months after a new leaf shows itself in a spiky form, at the center of the plant, before it fully develops. If one is impatient of results, the best thing to do is to buy a three or four-year old plant. Of course this will cost considerably more than a young plant, but you will find the money well invested, as your plant



PALM
(*Phoenix Reclinata*)

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will be enjoyable from the start, while, with a young plant, there will be lack of substance and size which will considerably detract from your enjoyment of it, unless you take pleasure in watching the process of development.

“I find little white objects on the underside of the leaves and along the stalks. These seem to do harm, as the leaf, after a little, turns yellow where they are. What are they, and how can I get rid of them?”

These “little white objects” are scale. They can be killed by the emulsion of kerosene and soap advised in the chapter on The Insect Enemies of Plants.

Nothing will restore a leaf to its original attractiveness after its leaflets begin to turn brown at the tips, but the looks of the plant can be considerably improved by clipping off the brown part, taking pains to point each tip in a natural manner.

XXVII. FERNS



NO collection of plants can be considered complete if it does not include some member of the Fern family.

Perhaps the most popular variety is the Boston Fern, catalogued as *Nephrolepis Bostoniensis*. It has gracefully drooping fronds often five and six feet in length, and there will be so many of them, in a well-grown specimen, that the effect is that of a fountain of greenery. It is of easy culture. About the only care it requires in the way of pruning is to remove the runners that are sent out from the old plant. To secure the best results keep the plant to one crown, promptly removing those that form about the old one. Give it a position where it can develop its luxuriant branches without interference from other plants, and it becomes a magnificent plant that will fill a large window. If crowded in among other plants it is spoiled.

Of late several sports of the Boston Fern



BOSTON FERN
(*Nephrolepis Bostoniensis*)

F E R N S

have been placed on the market. Most of these have proved unsatisfactory, after a little, as they showed a decided tendency to revert to the original type. But there is one variety that remains true to its variation from the parent plant—*Whitmani*. This is a most lovely plant. Its leaflets are miniature fronds, so finely divided that the large frond has the grace and fluffiness of a green plume. Its fronds grow to about eighteen inches in length, and are six inches in width, and as they are very freely produced, the result is a most charming plant, much better adapted to house-use than the Boston Fern, because of its smaller size. Like the parent variety, it is of the easiest culture.

Every woman who visits our large green-houses and sees *Adiantum* Ferns growing there will want to “try her luck” with them. And this can not be wondered at, for few plants equal them in beauty. But unless great care is taken in the selection of variety, failure almost invariably results. The foliage of most *Adiantums* is so delicate in texture that it soon withers in a hot, dry atmosphere. But there is one variety that I can confidently commend for amateur culture—*Croweanum*.

The texture of the fronds of this plant is much firmer and thicker than that of any other variety of this class that I have any knowledge of, and, because of this, it is able to withstand the unfavorable conditions of the ordinary living-room to a surprising degree. It is a strong grower, of upright, spreading habit, and young plants soon develop into fine specimens. If you have failed with *Adiantums* heretofore, give this variety a trial, and I predict success if it is given careful treatment.

Pteris Wilsoni is a crested Fern that is sure to please. This has clear green foliage. *Victoriæ* is another member of the *Pteris* family with silvery white variegation running the entire length of each frond and its divisions. This is a most beautiful plant. It has the merit of being able to flourish under conditions where its more delicate relatives would prove sorry failures.

Cyrtomium falcatum, better known as the Holly Fern, because of its thick, dark, shining leaflets, does well in the living-room. Put this variety side by side with *A. Croweanum* or *N. Whitmani*, and you find it difficult to believe that they are all members of the same family, so unlike are they in general appearance.



PTERIS FERN

F E R N S

While there may be other Ferns with which the amateur would succeed, to some extent, I would advise limiting the selection to these until the grower has become quite familiar with the peculiarities of this class of plants. When she has learned how to grow these well she will be justified in adding other varieties to her collection, but not before.

All Ferns like spongy, porous soil—one containing a large proportion of leaf-mold or its substitute, turfy matter. Mix some good, coarse sand with this, and add perhaps a third of loam. See that drainage is perfect, and then use water liberally. The more moist you keep the atmosphere in the rooms where your Ferns are, the better it will be for them.

No sunshine will be needed. On this account, Ferns are adapted to culture in windows having a northern exposure.

The Boston Fern is often grown in hanging-baskets. Where this is done, great care must be taken to see that it never lacks water. It is a good plan to lower the basket into a tub of water and leave it there until it has absorbed all the water it can retain.

The mealy-bug sometimes attacks such varieties as *Bostoniensis* and *Whitmani*, whose

fronds grow closely together at the crown. If the pest is discovered before it has had time to increase its numbers, it is possible to get rid of it. Take a tooth-pick or something similar and go over the plant, leaf by leaf, and carefully pick off each insect, and destroy it. This may prove a tedious task, but any one having a fine plant will not begrudge the labor required, in the hope of saving it. But if it has become badly infested before discovering its condition, about the best thing to do is to cut away all the fronds and allow the plant to completely renew itself, or throw away the old plant and provide yourself new ones, which you should make sure are clean before bringing them from the greenhouse. Insects are often introduced into collections by plants infested with them in the propagating-house. Always look the plants you buy over carefully before you give them a place in the window with plants that have been kept clean. It is a much easier matter to keep insects away than it is to get rid of them after they have secured a foothold on your plants. In case you cut back old plants, with a view to ridding them of insects, isolate them until you are sure that they are entirely free from these pests.

XXVIII

THE AZALEA AND THE AMARYLLIS



T holiday and Easter-time the Azalea is one of our most popular flowers. Thousands of plants are on sale in our cities, for presentation to flower-loving friends, and for house and church decoration. The plants are generally two or three years old, and are so exquisitely beautiful when in full bloom that it is quite natural for their owners to wish to utilize them another season. But little is known among amateurs as to the care and culture required by them, and under ordinary management they are almost sure to disappoint. They will *live*, it is true, but at such a "poor, dying rate," that not one plant out of a thousand, I feel quite safe in saying, will produce a flower the second season. This failure is the result of a lack of knowl-

THE AZALEA AND

edge as to the plant's habits and requirements.

Almost invariably failure results from the treatment given immediately after the flowering-period. The Azalea has an annual season of growth. This comes on as soon as the plant has developed its yearly crop of flowers. At this period it is very important that considerable warmth should be given, and it should be showered daily, heat and moisture combining to bring about the desired result. If neglected at this time—as it generally is—growth will be defective, and a poor foundation be secured for flowers in the coming season. Success in the culture of this plant depends largely, as I have said, on the treatment the plant receives at this period.

As soon as flowering is over remove the plant to a place several degrees warmer than that in which it has been kept while in bloom. Begin the shower-bath practice at once. Apply water in the morning, while the temperature is rising, and see that the sun does not shine on the plant until it is dry. Be very careful about watering. The Azalea has roots finer than the finest thread, and these are produced in such quantities that they form a thick mass in the center of the pot, through which water

THE AMARYLLIS

finds it difficult to penetrate. But it is imperatively necessary that water should reach every portion of its root-system, and therefore great care must be taken to see that no part of the soil is allowed to get dry. It is a good plan to run a wire through and through the mass of roots, thus forming little channels by which the water can be conducted where it is most needed. If the roots fail to receive the proper amount of water the plant often drops its leaves. If this occurs during the summer you will be safe in concluding that you will get no flowers from it that season, because it sets its buds months before they develop into flowers. Therefore it is very important that from the time buds are formed until they are developed the plant should receive no check.

Under ordinary amateur treatment the *Azalea* will bloom in January. While in bloom keep it in a cool room. Its flowers will last for weeks there, but in a hot room they will be short-lived.

After flowering give the treatment advised above.

In May or June put the plant out of doors. I would advise sinking the pot in the soil, in a cool, airy, but somewhat sunny place. Put

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some coal ashes under it to keep out worms. And be sure—be very sure—to see that the plant gets all the water it needs from this time on. On this depends success. No amount of after-treatment can overcome the bad effects resulting from a little neglect. Examine the soil in the pot nearly every day to make sure that there is no lack of moisture there. Run the wire through the thick mass of fibrous roots at least once a week, for the little channels made by it will soon close if the operation is not repeated frequently.

If plants are ordered from the florist in fall, great care must be taken in potting them if they are not sent in pots. Crowd the soil down very firmly about the ball of earth containing the roots of the plant. If this is not made as firm as the soil in which the roots are, water will run through it without penetrating the latter, and there will be trouble at the beginning. It is therefore very important that all the soil in the pot should be of equal density. Provide good drainage. Pot the plant low—that is, let there be a space of at least an inch between the surface of the soil and the rim of the pot. And let the soil be somewhat higher at the edge of the pot than at the center. This

THE AMARYLLIS

prevents the water you apply from running away from the base of the plant. In watering, it is a good plan to fill the pot to its brim, and allow it to soak into the soil gradually.

The chief enemy of the Azalea is the red spider. If the leaves of the plant begin to fall look it over sharply to ascertain whether the trouble is due to dryness at the roots or the ravages of the spider. If you find tiny webs under the foliage, you may safely conclude that the spider is responsible for the mischief that is being done. Simply showering the plants will not rout the enemy. Give the plants a dip-bath in hot water, as advised in the chapter on Insect Enemies. In this way you get rid of most of the spiders at once, and by frequent showerings thereafter you can generally prevent much harm being done.

There are so many superb varieties of the Azalea that it would be useless to attempt to say which are finest. All are good. Could I have but one class, however, I would choose the whites, as the flowers of this section are of the highest type of purity and loveliness. Next to them are the white and rose varieties, both double and single. I would not advise the purchase of very small plants, as it takes a

THE AZALEA AND

long time to grow them on to good size. Plants with a compact, bushy head a foot across can be bought for a dollar, well set with buds, and such a plant will often bear as many as a hundred flowers. Large plants, three feet across will cost three dollars, very likely, but they are well worth the price asked. Such a plant will be literally covered with flowers for weeks, if given proper treatment. On no account should the Azalea go into the cellar after blooming. It is not adapted to treatment of that kind.

The Amaryllis is another flower that amateurs attempt to grow, generally with unsatisfactory results. These failures are, as in the case of the Azalea, brought about from wrong treatment. The peculiarities of the plant are not understood. In the majority of cases it is given about the same treatment that the Calla receives. The result is—leaves, but no flowers. The two plants are not at all alike, and the treatment that suits one would prove disastrous to the other.

The Amaryllis bulb should be planted on the surface of the soil rather than under it, as is generally done. Its roots are put forth from the base of the bulb, after the fashion of the

THE AMARYLLIS

Onion. Any amateur wishing to grow it, and wanting an object-lesson in its culture, can get a good deal of valuable information on the subject by going into the garden and taking a look at the Onion bed in September. Plant your Amaryllis in the same manner that you see the Onions growing there. Do not use a large pot. Six-inch pots are quite large enough for the average-size bulb.

Let the soil for this plant be a moderately rich one of loam, barnyard manure of the old, well-rotted kind, and some sand. Use two parts loam to one part manure. Never use manure that is not black with age. If you cannot get it, use bone-meal in the proportion of a teacupful to a half bushel of soil. Have good drainage. If water stands about the base of the bulbs decay almost always sets in, and that means utter failure.

When you pot the bulb just received from the florist, water it well, and set it away in a quiet place to get a start. Wait patiently. Sometimes there will be no indication of growth for months. All at once you may see a leaf shooting up, and this will be followed by another, and another, five or six often being produced at one period of growth. As a gen-

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eral thing the plant will not give any flowers during the first year after being potted. It is getting thoroughly established.

When your plant is making leaves feed it well. Apply some good fertilizer, preferably a liquid. Future usefulness depends on the treatment which the plant receives at each period of growth. It is then that it stores up strength which will probably be expended in the production of flowers at the next growing season. Use the fertilizer as long as the plant continues to make growth. When it ceases to throw up new foliage, gradually cut down on the water-supply, and allow the soil in the pot to become rather dry. Not *entirely* so, of course, but just moist enough to keep the leaves of the plant from wilting. If the regular supply of water is kept up after the growing-period is over, the plant will be encouraged to keep on growing, or trying to, and the consequence will be a weak and unhealthy plant which can seldom be coaxed into bloom. It will be understood from what I have said that the *Amaryllis* has a growing period and a resting period, and in order to meet the full requirements of the plant each period should be made as complete in itself as possible. Help forward

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growth all you can, at growing-time, and then let the plant rest until it is ready to go to work again. If each alternating period of growth and rest is made in accordance with the habits of the plant, success may reasonably be expected with it. Ignore them or interfere with them and you may expect failure.

Quite often the first indication of a renewal of growth will be the appearance of a flower-stalk. Then leaves will come, and the development of these and the flowers will go on together. A strong bulb will sometimes send up two flower-stalks, each one bearing from three to five blossoms. This is the time for the application of fertilizers. By their use we provided for succeeding crops of flowers, as the buds which will develop into flowers at the next growing season are formed at this period.

It will not be necessary to repot the Amaryllis frequently if the soil is kept supplied with fertilizers while the plant is growing. Repotting should be avoided as much as possible, as a very little disturbance of the roots often results in a failure of flowers for some time to come. If repotting seems absolutely necessary, slip the plant out of its old pot very carefully, without breaking the mass of earth

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apart, set it in the new pot and crumble fine soil in about it until the pot is full. Settle by watering well, never by crowding it down, as by doing this some of the roots may be injured. By shifting in this manner, the plant will not be seriously affected. Shifting should be done at the beginning of the growing-period.

Some varieties have two flowering-periods yearly, but one crop of flowers annually is all that can be counted on by the amateur.

Do not put this plant into the cellar over winter. Winter may be the time for its next growing-period, for all we know, therefore it must be kept where we can always see what it is doing.

A well-grown plant in full bloom is something any amateur may be proud of. The best varieties have flowers almost as large as an Easter Lily, with broad petals. These range in color from bright pink to intense scarlet and crimson. Most varieties have a stripe of white running through the center of each petal. Large, perfectly developed flowers are simply superb in general decorative effect.

XXIX

OTHER DESIRABLE PLANTS FOR AMATEUR CULTURE



YCLAMEN.—This plant is an old favorite. It is neither a bulb nor a tuber, but is a corm, very much like the *Gladiolus*. Its flowers range from almost pure white to pink, with tips and markings of rich violet and crimson. In form they are very peculiar, their petals being oddly twisted and reflexed. Strong plants will give a wonderful profusion of flowers throughout the winter. They succeed in rooms where many other flowers fail to grow, and, on this account, are favorites for winter use. If plants are procured in spring, pot them in a rich loam. Do not cover the corm—simply press it down into the soil. Encourage vigorous development the first season, by frequent applications of fertilizer. Flowering ought to

OTHER DESIRABLE PLANTS

begin about the holidays. It will continue, as a general thing, until May. Then set the plant away in a cool place, and withhold water, forcing it to remain nearly dormant during the summer. In September, give more water, and weak applications of fertilizer after growth is renewed. The strength of these applications should be increased somewhat when buds appear.

Of late the florists have succeeded in producing varieties with extremely large flowers of rich and varied coloring. The new strains are much superior to the old.

TUBEROUS BEGONIAS.—This class of Begonias blooms in summer, and rests in winter, the old top dying entirely away. The flowers of most varieties are much larger than those of the fibrous-rooted sorts, and generally much richer in color. Some are double, some single. Some of the double varieties have flowers quite like miniature Roses. The single kinds have very wide petals, and are very showy because of their great size and rich coloring.

The tubers should be procured in spring, and planted in a soil of light sandy loam. Before potting them it is well to sprout them, as it is sometimes difficult to tell which side



CHINESE PRIMROSES, CYCLAMENS, AND STEVIA

FOR AMATEUR CULTURE

should be put uppermost. Spread them out on damp moss, or on pieces of old carpet, and keep them moist and warm until sprouts appear. Then put them into pots, just covering the tuber with soil. It is well, at this time, to set a stick by each tuber to tie the stalk to, as it shoots up. Being very soft and brittle, it is easily broken if not given good support.

Water moderately.

A window with an eastern exposure suits this plant much better than a sunnier one.

When the blooming-season is over—which will be in October, as a general thing—the leaves will ripen and fall off. Allow the soil to become quite dry. When the stalks have fallen from the tubers, set the plants away, in their pots, without disturbing them in any way. Keep them through the winter without water, or, if any is given, let it be in such small quantities that the soil is only very slightly moist—just enough so to prevent the withering of the tubers.

In spring, shake the roots out of the old soil, and sprout them as already advised, after which pot them in fresh soil, as at first. Tubers so treated will remain strong and healthy for years, increasing in size with age, and giving more and more flowers each year.

OTHER DESIRABLE PLANTS

In color they range from pure white to crimson, vermillion, rose, and yellow. They are among our best summer-flowering plants. No collection ought to be without them.

GLOXINIAS.—These plants have tubular flowers of exceedingly rich colors. These colors run through many shades of scarlet, purple, and rose to pure white. Most of them are marked most peculiarly with contrasting colors. Some have a white throat, the ruffled edges of them being broadly margined with one or the other of the colors mentioned above. Others have a dark throat, with white edges. Some are spotted. The foliage of the plant is very large. It will droop over the pot and hide it, and from among it the flowers are sent up in large numbers, when the plant is given proper care.

The Gloxinia should receive the same treatment as advised for the Tuberous Begonia.

Care should be taken, in watering, to see that no drops fall and remain on the foliage. Use a pot with a long spout, which will enable you to apply water to the soil, *under* the foliage.

We have no finer summer flowering plant.

COPROSMA.—This is a plant of recent introduction, but its good qualities will make it a

GLORINTAS



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favorite as soon as it becomes better known. It is of very easy culture, doing well in a soil of loam and sand. It requires a moderate amount of water, and plenty of light. Its foliage has a mint-like fragrance, when touched. Its flowers are of the purest white, like those of the Astilbe, light, airy, and graceful, borne in spikes well above the foliage.

Its flowering season is February and March.

After flowering, the plant should be cut back until little but a stub is left of the main stalk and branches. Keep it quite dry for a month or two. As soon as growth sets in more water should be given, but use no fertilizer until late in the fall.

PLUMBAGO.—This plant deserves a place in every collection, for three reasons: It is of the easiest culture—it is an almost constant bloomer—and its flowers are very beautiful. In shape they are very much like those of the Phlox, but with narrower petals. They are borne in loose clusters, at the tips of the branches. In color they are a soft, delicate blue—an exceedingly rare shade among flowers, and especially so among house-plants.

This plant requires about the same soil as that given the Geranium, and about the same

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amount of water. It is of slender habit, and must be well supported when allowed to grow to suit itself. It can be made quite bushy by repeated pinching back, but is never as effective when trained in that way as when allowed to grow up the window. Its flowers are borne on new growth. As soon as the first cluster on a branch has developed, cut that branch back at least one half. Side-branches will be thrown out below, and these, in turn, will bear flowers. Feed well, in order to keep the plant producing new wood. The foliage of it is sparse and unattractive, but what it lacks in this respect it fully makes up in the beauty of its blossoms.

Once a year cut the old plant back very sharply, and force it to renew itself. Do this during the latter part of summer.

CARNATION.—This plant is too well known to require any description here. Most amateurs undertake the cultivation of the greenhouse varieties, and generally fail with them because they give too much heat, too much water, and allow the red spider to work on them.

A soil of rather heavy loam suits the Carnation much better than a lighter one. Drainage should be perfect. Water should be given in moderate quantity, but it should be given with

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great regularity. The plants should be showered all over every day, if possible, to keep the red spider down. If this is not done this pest will soon ruin them.

If young plants are procured in spring, to grow on for winter use, they should be pinched back, at intervals during the season, to secure plenty of branches. If this is not done they are almost sure to develop into lanky, leggy plants with but few branches to bear flowers. They should not be allowed to bloom during summer. Hold them in reserve for winter. In September put the young plants into six and seven-inch pots. These will be large enough for them to bloom in. When buds show, apply a good fertilizer. If many buds appear, it is well to cut away some of them, thus throwing the strength of the plant into the development of large flowers from those you leave.

If one does not care to start her Carnations in spring, field-grown plants can be procured in early fall. These will be bushy, compact plants, often well set with buds when sent out. If this is the case, I would advise cutting away every bud, and not allowing the plant to bloom until later in the season after it has fully established itself in its new quarters.

OTHER DESIRABLE PLANTS

MARGUERITE CARNATION.—This variety of Carnation is grown from seed each season. It is primarily intended for the decoration of the outdoor garden, but repeated trials of it in the window-garden have proved it to be an excellent winter-bloomer, and I would advise potting strong plants of it for that purpose each fall. While its flowers are not as large as those of the greenhouse varieties, many of them will be quite as rich in color, and as double, but few of them, however, having the fragrance of that class. For house-culture I find it preferable to the latter, as it has a much stronger constitution, and a more profuse flowering habit. Wait until your plants blossom before selecting any for the house. Some of them will give single flowers, and others will be poor in color, though quite up to the standard in other respects. It is not worth while to make use of inferior kinds, since there are sure to be good ones in all collections grown from seed. Wait to make sure which are the good ones before potting any.

Give the treatment advised for the greenhouse sorts. If possible keep them in rooms in which there is no fire heat.

FIGUS.—This is the well-known and always

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popular Rubber Plant. It is one of the best of all plants for the amateur who desires something for the decoration of the hall in winter and the veranda in summer, as it can be grown much more easily than almost any other plant on the list. Its large foliage, thick and leathery in texture, with glossy surface and rich coloring, is always attractive. Give it a soil of good loam, a moderate amount of water, and plenty of light, and it will ask very little more of you. Its leaves can be washed as safely as a piece of crockery, and therefore it is an easy matter to keep them clean. When the plant is making vigorous growth apply a good fertilizer once a fortnight. If this is done it will not be found necessary to make use of very large pots.

If the foliage turns yellow there may be three causes for it: The plant may not get as much water as it ought to have—it may be root-bound—or the older leaves may be ripening, in which case it is the natural thing for them to drop off.

Sometimes scale attacks it. If any are found use kerosene emulsion.

Ficus pandurata is a variety of recent introduction. This has much larger foliage than *Ficus elastica*, the Rubber Plant, and soon

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develops into a plant of great dignity and beauty.

Ficus elastica variegata is a variety similar to the ordinary Rubber Plant in all respects but one. Its foliage is broadly and irregularly marked with light green and yellow. Very desirable by way of variety.

AGERATUM.—An annual highly prized in the summer-garden, but equally as desirable for winter-flowering. Its flowers are of a dainty shade of lavender-blue. Young plants can be obtained by breaking old ones apart. This should be done in August, in order to give them ample time to become established in pots before it comes time to take them indoors.

Give the same soil in which they grew in the garden. Six-inch pots will be large enough for plants of ordinary size. Shower well to prevent ravages of the red spider.

ANTHERICUM.—A very pretty plant for decorative purposes. Its foliage, of which there is a great profusion, is long and narrow—green, edged with white, after the fashion of “Ribbon Grass.” This is an excellent plant for shady locations. It has very pretty but not showy flowers, borne in long spikes, well above the

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foliage. Flowers are not necessary, however, to make it a most attractive plant.

Give it a soil of loam and turfy matter, half and half. Water liberally. Have never known it to be attacked by any insect.

ARDISIA.—*Ardisia crenulata* is a very ornamental plant. Thousands are grown for sale at holiday-time. It is trained as a small tree. Its foliage is a very dark, rich green, thick in texture, with a glossy surface. It bears a profusion of brilliant red berries.

Fine for table use.

Give it a soil of rather heavy loam. Water well, and shower frequently. Be on the lookout for scale.

JERUSALEM CHERRY.—Another fruit-bearing plant which has great popularity in winter. Easily grown from seed. Start your plants early in the season in order to have them for bearing size by the following winter. Beautiful as a table ornament. The fruit remains on the plant for a long time. Treat as advised for *Ardisia*.

AUCUBA.—A strong-growing, shrub-like plant with foliage of rich, glossy green, thickly spotted with yellow. Often called the "Gold-dust Plant," because of its peculiar variega-

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tion. Excellent for the hall in winter and veranda in summer. It does best in a soil of strong loam. Requires a moderate amount of water. Keep the foliage perfectly clean at all times if you want it to do itself justice. A little coating of dust obscures the tiny spots of gold scattered over the surface of the leaf. Is sometimes attacked by scale. Use kerosene emulsion as soon as any are discovered.

This is one of the plants that can be depended on to do duty for an indefinite period if properly cared for.

OLEANDER.—An old-time favorite which has never lost its popularity. Large plants are magnificent for porch-decoration in summer. In winter they can be stored in the cellar. Bring to the light in March, and apply water freely. Very shortly growth will begin. Flowers will be produced in enormous cluster at the extremity of each new branch. Feed well at flowering-time, and be sure to give all the water needed. Its roots are plentiful and small, and take up large quantities of water very rapidly. Therefore it is an easy matter to think it is getting enough when in reality it is suffering for more. Its rich rosy carmine flowers are almost as beautiful as Roses.

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Soil required—sandy loam.

Look out for scale.

This is one of the plants that requires considerable room to develop in. Therefore give it a place in the plant-room if possible, if winter flowers from it are desired.

CALLA.—Another old favorite, and justly so. On account of its large, tropical foliage it is very attractive when not in bloom. When it sends up flower-stalks three and four feet in length, crowned with what are generally considered to be flowers of ivory-white, it is a most ornamental plant. What most persons take to be a flower is really a spathe, enclosing a spadix along which the true flowers are borne. These are so small as to be unnoticeable.

Plant in rich, mucky soil. Have the pots well drained, and then use a large amount of water. In June put the plants out of doors, turning the pot down on its side under a tree, or alongside a fence. Apply no water and give no attention during the summer. Of course the soil will become perfectly dry, and all the top will die off. But no harm is done, if this happens. The plant is a native of Egypt, growing along the Nile where, during a good share of the year, there are floods, and during

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the rest of the year drouths. The treatment advised simply imitates the conditions under which the plant grows in its native habitat. In September shake the roots out of the old soil and repot. Growth will begin in a short time after water is given. Apply water, liberally. Use fertilizers as soon as buds show. Shower daily to keep off the red spider.

Most persons remove the offsets which appear about the old roots in large numbers. I would not advise this, for they give you a good deal of foliage about the base of the plants and this is much more attractive than the bare stalks of the leaves sent up from the old roots.

CESTRUM.—A plant for the plant-room, of shrubby growth, bearing long spikes of greenish-white flowers, which are not at all showy. At night they give off a rich, powerful fragrance. This variety—catalogued as *C. Parqui*—is known as the Night-blooming Jessamine. *C. auranticum* has flowers of a rich orange. This variety is very attractive when in full bloom. Can be kept in the cellar over winter. Give soil of loam, and a moderate amount of water.

Be on guard against the aphids. If the pest appears, make prompt use of Nicotocide.

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Showering will prevent the red spider from doing much harm.

PARIS DAISY.—A member of the great Chrysanthemum family, bearing large, Daisy-like flowers throughout the winter. There are two varieties in general use—one a pure white, the other a soft yellow. Both are desirable.

Grow in loam. Pinch the plants back, while young, to force branches. Use water freely, as the plant has a multitude of very fine fibrous roots to drink it up. Apply fertilizer at flowering-time.

COLEUS.—Everybody is familiar with this plant. It can be made very useful in the house in winter, its richly-colored foliage making it a good substitute for flowers at the season when few plants are in bloom. Plants for winter use should be started from cuttings during the early fall. Strong, vigorous young plants are better than old ones for this purpose, as they have larger foliage. Be sure to give plenty of sunshine if you want the colors to come out strongly.

Give a soil of sandy loam. A rather higher temperature than most other plants require seems to suit this plant well.

Look out for mealy-bug.

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OTHER DESIRABLE PLANTS FOR AMATEUR CULTURE

CONTINUED



FARFUGIUM.—*Farfugium grande*, better known as Leopard Plant, has long been a favorite with those who admire variegated foliage. It has large circular leaves of dark green spotted with yellow. The leaves are sent up directly from the root. Therefore it is not a plant of tall growth. Give it a soil of loam and muck, equal parts. See that it gets all the water it needs.

Sometimes the mealy-bug attacks it. Be on the watch for it.

GENISTA.—A beautiful plant, blooming with great profusion in early spring. Its flowers are pea-shaped, borne in clusters all over the plant. In color they are a bright yellow. Delightfully fragrant. Foliage as fine as the

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flowers. Does well in any good soil. Will grow to large size if given plenty of root-room. Can be trained as bush or tree. Must be watered well, and given good light. Will stand any amount of pruning, which should be given after the flowering season is over. The mealy-bug has a great liking for it, and will do much harm if not promptly repulsed.

This is one of the popular plants grown by the florists for spring decoration.

HELIOTROPE.—An old favorite, which no plant of modern introduction has been able to displace. It is a free bloomer. Its flowers are of varying shades of purple-blue and lavender. It is not a showy flower, on account of its subdued color, but it is a beautiful flower for all that. It has a most delightful fragrance. A small cluster of bloom will sweeten quite a large room.

It is easily grown from cuttings. Plants started in spring will grow to flowering size by the middle of summer, but I would advise keeping all buds picked off if you intend to make use of them during winter. Pinch the young plants back well from time to time to make them bushy. The more branches you have the more flowers you can expect.

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This plant likes more heat than most plants. It must have plenty of sunshine. It has very fine roots, therefore it must be watered freely, and with great regularity. Allow the soil to become dry and the plant will almost always drop its leaves. The same thing will happen if it is exposed to coal-gas. Give it a soil half loam, half turfy matter, with considerable sand worked into it.

Drain the pots well. Use considerable fertilizer when the plant comes into bloom. Make cuttings of the old plants in spring, for use in the outdoor garden later on.

LANTANA.—Plants of shrubby habit, blooming freely and continuously throughout the entire summer, and again in winter if cut back and made to renew themselves. Colors range from pure white, through pink to red, yellow, and orange. Flowers borne in clusters, all over the plant. Can be made to grow to large size, but this is not desirable unless you have a room solely for flowers, where large plants will not be crowded. Does well in any good soil. Is seldom attacked by insects. Grows readily from cuttings. Equally at home in a pot or in the garden.

PELARGONIUM.—A member of the Gera-

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nium family whose flowers rival the Orchid in beauty of color. The late Peter Henderson used to say that this was the showiest plant he had any knowledge of, and that he would rather have it than any other for the spring decoration of the greenhouse and conservatory. Certainly it would be difficult to find anything more brilliant and rich in color. There are varieties of the purest white, others of dark crimson, scarlet, vermilion, and delicate rose. Nearly all the colored varieties are blotched and flaked and feathered with maroon or white on their upper petals. Some of the whites have markings of these colors, making them strikingly beautiful because of the strong contrast. Many varieties of recent introduction have broad petals with crimped and ruffled edges, giving the effect of a double flower.

The season of bloom is early spring. The flowers are borne in large clusters, and the entire plant will be covered with them for weeks.

I would advise the purchase of young plants in spring. Grow these during the summer for winter-flowering. Give the same kind of soil and the same treatment as advised for the Geranium. By frequently pinching them

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back they can be made to take on a bushy habit. You want all the branches you can get, for the more branches there are the more flowers you will have.

After the flowering season is over, cut back the plants till there is nothing left of them but a stubby stalk. Use the branches cut away to make cuttings. During the summer water very moderately, thus encouraging the plants to remain nearly dormant. Keep in a cool room when brought into the house in fall. They will generally begin to make vigorous growth by the holidays. As long as it is strong and healthy use no fertilizers. Hold them in reserve for the time when buds begin to show. Plants of very rapid growth often refuse to bloom, their strength being expended in the production of branches instead of flowers.

As a general thing young plants will be found more satisfactory than old ones.

If there is an aphid anywhere about the place he will be sure to locate himself on this plant. You will have to fight long and hard to rout him, but the liberal use of Nicotocide will do the work.

The popular name of this plant is Lady Washington Geranium.

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SWAINSONIA.—A very desirable plant of easy culture.

Flowers pea-shaped, produced in spray-like clusters. Color pure white. A very floriferous plant, blooming throughout the greater part of the season. Of slender habit. Can be trained up about the window with fine effect.

Give it a soil half loam, half turfy matter. Water well. Cut back sharply after each period of bloom.

TUBEROSE.—One of my special favorites for fall-flowering in the house. Flowers borne in spikes a foot or more in length, at the extremity of tall stalks. Color pure white. The petals have the texture of wax. This plant has the rich, heavy odor of the Cape Jasmine and the Magnolia.

I procure strong tubers in spring. I pot them in sandy loam, first cutting away the old roots which are generally found adhering to the base of the tuber. If this is not done they are likely to decay, and this may lead to decay of the tuber. Cut them away with a thin-blade, sharp knife, making sure to remove every portion of them. The many failures complained of with this plant are directly traceable to disease communicated from these old roots.

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Flower-stalks are sent up in August and September. These should be tied to stakes to prevent breaking down from winds. Bring into the house before frosty weather sets in.

Old tubers are of no value a second season, as they give but one crop of flowers.

VALOTTA.—This plant is a fall-flowering member of the *Amaryllis* family. It can always be depended on to bloom in late August and September. Its flowers are not as large as those of the hybrid *Amaryllises*, but they are richer in color and are produced in great profusion. The bulbs increase very rapidly. Remove none of them until the pot is crowded with them. Each bulb will send up a stalk bearing from three to six blossoms of a rich, shining vermilion. The effect is superb. This is a most admirable plant for the decoration of the veranda.

Give a soil of loam enriched with old cow-manure.

Keep in cellar over winter.

CHINESE PRIMROSE.—This is a standard plant in most window-gardens. It is a free and constant bloomer, and will give the best of satisfaction if given the right kind of treatment. It likes a porous, spongy soil, well drained.

CHINESE PRIMROSES



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Be sure to have the crown well above the soil, which should slope away from the plant to the sides of the pot. If the crown is even with the surface, and water runs in about it and stands there decay will be pretty sure to set in, and that means death to the plant. There are single and double varieties, ranging in color from pure white to dark crimson, violet, and pink.

Instead of carrying old plants over for a second season of flowering I would advise the purchase of your plants each spring. You can grow them from seed if you care to do so.

PRIMULA.—The Primula is really a Primrose, but is so unlike it in habit that we put it in a class of its own.

Primula obconica is one of the most floriferous plants I have any knowledge of. It begins to bloom early in fall, when grown from spring seedlings, and is never without flowers until late in spring. It would no doubt keep on blooming all summer if encouraged to do so. Its flowers are borne in clusters thrown well above the foliage, which forms a luxuriant mass, covering the surface of the soil and half hiding the pot. In color these flowers range from pearly white to rosy lilac, with a greenish-yellow eye.

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This plant likes a turfy soil. It has thousands of fine roots, and must be watered very liberally.

I would advise the purchase of young plants each season.

Primula Forbesii is the variety better known as Baby Primrose, because of its small flowers. It is a charming plant, with blossoms that remind you of the wildwood. It will win its way to your friendship if given a chance to do so. Grow it for a season and you will not willingly be without it thereafter.

It requires the same treatment as *P. obconica*. Both these varieties do well in sunless windows.

CINERARIA.—One of our most brilliant and showy winter-bloomers. Its flowers of violet, crimson, and maroon, marked with white, are freely produced in large spreading panicles that cover the top of the plant and give it the appearance of being a large bouquet.

I would advise stocking up with seedling plants from the florist each fall. It is not worth while to depend upon home-grown plants.

HYDRANGEA.—This plant is too well known to need a detailed description here. When



CINERARIAS AND PRIMULAS

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well grown we have nothing capable of giving stronger effect. For porch and veranda decoration it stands at the head of the list.

Old plants can be kept in the cellar over winter. Bring them to the light in March. As soon as they begin to grow well, make liberal use of fertilizers. Buds are formed in fall, and our aim should be, at this time, to encourage the fullest possible development of them. The flowers are of pale pink, on opening, changing, later on, to a more decided red, and still later to a dull green. When they take on this color they should be cut off. These flowers are borne in enormous trusses, there being so many of them that the branches of the plant bend beneath their weight. Large plants frequently have as many as a hundred or more at a time. Plants are good for an indefinite period, if well cared for.

After the flowering season is over, cut the bush back sharply, shorten every branch. Feed well at this time to encourage the production of branches on which flowers will be borne next season.

Never prune in early spring. If you do this you sacrifice the crop of flowers for which the plant made preparation last fall.

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PETUNIA.—The single Petunia of the garden makes an excellent winter-bloomer in the window-garden. It may not be quite as showy as the double variety, but it is far preferable to that, as it can be depended on to give flowers throughout the entire season, and that cannot be said of the double Petunia.

If you had fine varieties of the single Petunia in the garden in summer, select such of them as you admired most, and pot them in September. Cut away the entire top when you do this. Give them the same soil they grew in during the summer just ended. In a short time new branches will be sent up from the old roots, and almost before you know it the plants will have renewed themselves. Growth will be as luxuriant as if they were in the garden beds. Soon they will begin to bloom, and from that time until spring they will seldom be without flowers. It is a good plan to shorten the branches from time to time, thus encouraging the production of new ones, from which you will get larger and finer flowers than from those which have exhausted most of their strength in the development of blossoms.

The application of fertilizers, of moderate



HYDRANGEA

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strength, will have a marked effect on the size of the flowers.

SALVIA.—This is another garden flower that can be made to do excellent work in the house in winter if properly treated.

Look the old plants over, and select a shoot of small size that can be broken away from the parent plant in such a manner as to bring a piece of root with it. Pot this in soil taken from the garden where the old plants grew. It will be inclined to make a branchless growth if left to its own devices. Do not allow this. Nip off the top of it when it is a foot high, and thus force branches to develop. Ever after you take the plant into the house keep watch for the red spider, who seems to have an especial fondness for this plant. Shower it as often as possible, and give it a dip-bath once a week.

Along about holiday-time it ought to come into bloom. Its long spikes of scarlet flowers are as bright as fire, and they will rival the most brilliant Geranium on the list in making gay the window in which they grow.

This list would be incomplete if mention of a few of the best plants for hanging baskets were not made.

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SAXIFRAGE. — Saxifrage *sarmentosa*, often known as "Strawberry Geranium,"—though it does not have the remotest relationship with either of those plants—is a very pretty hanging plant. Its foliage is circular in shape, of a dark olive variegated with white. There will be a cluster of leaves, large and small; from these runners will be sent out; when they have grown to the length of a foot, another cluster of leaves will form. The habit of the plant is as pleasing as it is peculiar. Well-grown specimens will nearly cover the pot with foliage, and there will be runners festooning all sides of it with their leaf-clusters. Easily grown from runners which have been allowed to root by coming in contact with the soil.

OXALIS.—The Oxalis is a charming plant for a hanging basket because it blooms so freely, and requires so little attention. *O. rosea* is a bright pink variety. *O. alba* has a pure white flower. The best variety of all is *aurea*, generally known as the "Buttercup Oxalis." This is a rich golden-yellow. Its flowers are borne in wonderful profusion throughout the entire winter.

The Oxalis is grown from small tubers, which should be procured from the florist in

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September or October. Plant half a dozen in each six-inch pot, in rich sandy soil.

OTHONNA.—This is more commonly known as Pickle Plant, because of its thick, succulent foliage of cylindrical shape, bearing some resemblance to a miniature pickle. It throws out a great many branches. These root at every joint, if they come in contact with soil, and the result is a thick mass of greenery, against which the bright yellow flowers which it produces in wonderful profusion show to fine effect. This, as well as the *Oxalis*, must be given a sunny window.

GLECHOMA.—A vine of vigorous habit, with prettily variegated foliage. It is equally valuable in hanging-basket and window-box.

MONEYWORT.—An old stand-by. It sends out scores of branches which reach a length of three and four feet, thickly set with bright green foliage. We have prettier plants in this class, but this grows with so little trouble, and is always so bright and cheerful that one can not help forming a warm friendship for it. Give it a good soil and plenty of water and it will ask no further care at your hands.

LYSIMACHIA.—This is generally known as Coliseum Ivy. It is a plant of exceedingly

OTHER DESIRABLE PLANTS

rapid growth, with pretty foliage, and dense habit.

TRADESCANTIA.—Another old stand-by of quick growth and strong constitution, flourishing where most other plants would soon fail. It will grow in any soil, but it will be found most satisfactory if given one of only moderate richness. In a very rich soil its joints will be far apart, consequently its foliage will be sparse. It must be pinched back well to make it branch freely. There are several varieties—one with plain green leaves, one with green and white leaves, and another in which green, olive, and pink are about equally represented.

Mention has already been made of *Asparagus Sprengeri*. This, as well as *A. plumosus nanus*, is well adapted to use in hanging-baskets. So is *Abutilon vexillarium*, with its prettily variegated foliage. Almost all plants of drooping habit can be made to do duty in suspended pots, if care is taken to see that they are well watered. Nine failures out of ten with hanging plants result from an insufficient water-supply. Because it is not as easy to get at them as at the pots in the window, we fail to give them as much water as they need, and the result is that they get dry at the roots before

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we suspect it, and the mischief thus done often results in speedy failure. Water hanging plants as well as you do the plants on the sill and there is no reason why you should not grow good ones.

The writer does not want to be understood as meaning that the plants made mention of in the preceding pages include all that are desirable for window-culture because the list is not extended to greater length. Such is not the case. He has spoken only of the kinds he considers best for that purpose—the kinds that the beginner in indoor gardening will be most likely to succeed with.

A study of the catalogues of the florists will enable the ambitious amateur to discover many other kinds that can be grown in the window-garden. But he would advise confining selections to this list for the present. It is well to wait until you have gained some general knowledge of plants before undertaking to grow those which require a good deal of care and attention.

XXXI

SOME GOOD DECORATIVE PLANTS



PERSONS get into ruts in their selection of plants for decorative purposes, as they do about most other things. In nearly every home, at the present time, where *any* plants are grown, we find the Palm. But if we ask the owner of that home why she does not grow the Aspidistra, the Araucaria, the Pandanus, or the Agave, the chances are that she will tell us that she does not know much about these plants. She has confined her attention to the Palm because it is popular and ornamental, when well grown, and is supposed to be better adapted to amateur culture than anything else in decorative-plants.

Now the fact is, there are other plants of a decorative character really much easier to grow, and grow well, than the Palm. And some

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of them are quite as attractive, in a different way. Those who are fond of a change will do well to take up some of these plants. After giving them a trial I am sure they will be delighted with them.

At the head of the list I would place the *Aspidistra*. Why it has never become more popular with the rank and file of plant-growers in this country I have never been able to understand. In Europe, and especially in Paris, we see it used in great quantities, and with exceedingly fine effect. It may lack the stateliness of the Palm, but what it lacks in this respect it makes up for in its profusion of foliage, its rich coloring, and the wonderful ease with which it is grown. For any one who can grow a *Geranium* can grow the *Aspidistra*, and grow it to perfection. Indeed, it requires much less care than that plant.

The writer has a plant about ten years old, growing in a fourteen-inch pot. It has, by actual count, over two hundred leaves, from eighteen to twenty-four inches in length, not counting in the leaf-stalk. The leaves of this plant are all sent up from the roots, as the plant never has any branches. In color they are very dark, rich green with shining surface,

striped with creamy white. In texture, they are thick and firm, with a leathery character that enables them to successfully resist dust and the debilitating influences of dry air. This plant has not been repotted for over seven years, nor has any fresh soil been given it. It subsists on food furnished in the form of a liquid fertilizer, which is applied regularly, but is never very strong. Treated in this way, this plant has remained in perfect health, and has done more decorative duty than any other plant I have ever grown. For filling a corner, for ornamenting the porch, or the steps, or taking a prominent place in the decoration of the hall it has proved invaluable. One of its most meritorious features is its ability to get along with less direct light than any other plant I have any knowledge of. It is therefore adapted to locations where there is no strong light—nooks and corners where other plants would soon languish seeming to suit it perfectly. Because of its low, spreading habit it can be made to do duty in many places where Palms would not work in well. Give it all the water it needs, feed it as advised, and wash it from time to time to free its leaves from dust and enable their rich coloring to show effective-

DECORATIVE PLANTS

ly, and it will ask no more of you. The variety described will be found catalogued as *A. lurida variegata*. There is a plain-leaved kind quite as easy to grow, but not as attractive in coloring. Give this plant a trial, and I venture the prediction that you will prefer it to any Palm you have ever grown—and that is saying a great deal for it. It never gets sick, no insect ever attacks it, and it needs no coaxing.

The *Araucaria* is another plant that a great many persons will prefer to the Palm, after they have given it a trial. This plant is sometimes called the Norfolk Island Pine. It has heavy needle-like foliage, somewhat similar to that of our native Hemlock, only not quite so flat in arrangement. Its branches are produced in whorls, generally of five, but sometimes six or seven. These whorls rise one above the other in great regularity, and the general effect is that of a tree trained in pyramidal form. It is of quite rapid growth, and any time your specimen becomes too large for your window you can readily trade it to your local florist for a smaller specimen, or for other plants, for he can make excellent use of it in working out his decorative schemes. For church decoration it is admirable. This is a

plant which ought to occupy a prominent place in your plant-room, where it will be found much more effective than in the window, as the latter place does not afford it an opportunity to display its beauty effectively.

It is of easy culture. Give it a soil of garden-loam made friable by the addition of sand. Water it regularly, but do not keep it *wet*. Shower it all over as often as possible—this to keep it clean, and prevent the red spider, its only enemy, from doing it harm. It likes plenty of good light, but does not seem to care for sunshine. Apply a fertilizer whenever a new whorl of branches is being produced. It is so entirely different from the Palm in all respects that those who have grown that plant for some time will appreciate its decorative ability, by way of change.

The Pandanus, or Screw Pine, is another extremely beautiful plant for decorative purposes, especially the variety catalogued as *P. Veitchii*. This has a stripe of white running the entire length of the leaf. The leaves are long, and narrow, and curve gracefully out from the center of the plant, thus making it very effective for the center of a group. The edges of the leaves are thickly set with saw-



SCREW PINE
(*Pandanus Vietchii*)



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like teeth terminating in a thorn, making it a most unpleasant plant to handle, unless your hands are well protected with leather gloves. To grow it well, give it a spongy soil, good drainage, plenty of light, and a rather high temperature. Shower it frequently. If you find the red spider on it, wash it with a weak solution of fir-tree oil, taking care to start at the base of the leaf and draw your cloth toward its tip. If this is done, you will have no trouble with its needle-like thorns, but begin at the top and work downward and you will find it as prickly as any Cactus, and far more aggressive, as its spines are longer than those of any Cacti usually found in the window-garden.

For those who like something very striking and out of the common, there are few plants that will give more pleasure than Agave Queen Victoria. This plant is a member of the Century-plant family. It has thick, succulent leaves of pale green, broadly banded with creamy white or clear yellow. These are terminated with a thorny point quite like that of some varieties of the native Thorn Apple. It is able to stand all kinds of neglect and hard usage, and flourishes under most unfavorable conditions. But it must never be subjected

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to frost. For the decoration of the veranda, in summer, it is simply superb, its tropical appearance making it very attractive and strikingly effective. In winter it can be made use of in the hall. It is of the easiest culture. It readily adapts itself to living-room conditions. No insect ever attacks it, so far as my experience with it goes, and it is subject to no disease. It grows well in any soil in which loam is the principal ingredient. Not a great deal of water is required. Nor is it exacting as to light.

All the plants of which mention has been made in this chapter will afford the home gardener great pleasure, if she is willing to give them the care necessary to bring them to full development. They make it possible to have variety, where there has been but little because of the impression that there was not much use in the amateur's attempting to grow anything but the Palm and a Fern or two.

XXXII

BULBS FOR THE WINTER WINDOW-GARDEN



ANY a flower-loving woman who passes the shops of the florists in our great cities, along about holiday time, can not resist the temptation to pause before the windows in which Hyacinth and Tulip, Lily and Narcissus, vie with each other in making the place look like fairyland. Always the longing comes to possess a bit of this lavish display of beauty for the home. But the wish gives way to the thought that such beauty is not for the amateur florist. The growing of bulbs for winter flowering must be left to the professional florist. There is—there *must* be—a “knack” about it which the ordinary person can not hope to master.

Here is where a great mistake is made. There is no “knack” of any kind, using the

BULBS FOR THE

term in the sense which means a mysterious process of cultivation which is—and must ever remain—a secret to all but the elect few. The fact is, there is nothing simpler in all flower-growing, than the cultivation of many kinds of bulbs in the house in winter. Indeed I know of no phase of floriculture in which the amateur gardener is more likely to be successful. All the “knack” there is about it consists in *knowing what to do, and how to do it.*

And this any child who loves flowers can easily learn.

Bulbs intended for winter-flowering should be ordered as early in the season as possible. Most of them are imported, and shipments will begin to arrive early in September. As soon as received the dealers will begin to fill the orders of their customers, if instructed to do so. All bulbs part with vitality rapidly when exposed to the air; therefore it is advisable to procure them as soon as possible after they are unpacked by the florists.

It is also quite important that they be potted as soon as possible after they are received from the florist. Therefore begin to get ready for taking proper care of them as soon as your order has been sent away, that there may be



EARLY TULIPS IN POT

W I N D O W - G A R D E N

no unnecessary delay in getting them into pots on their arrival.

Success with bulbs depends largely on the soil you give them to grow in. Here is a formula for a compost that never fails to give perfect satisfaction: Ordinary garden-loam, one-third; old cow-manure, one third; sand, one-third; mix thoroughly.

This will give you a soil that is light, friable, and rich. It is admirably adapted to all bulbs whose culture can be advised for the window-garden.

It is quite important that the manure used be old and well-rotted. *Fresh* manure is always to be avoided. Indeed, rather than make use of it among bulbs, I would prefer to go without a fertilizer altogether. Manure that is black, and can be readily crumbled under the hoe, is in proper condition to use.

If barn-yard manure is not obtainable, substitute bone-meal, as advised in the chapter on The Use of Fertilizers. But so superior is the barnyard product that it is well worth making a special effort to secure it.

If new pots are to be used, do not fail to give them a good soaking before you fill them with soil. See that drainage is good, for no bulb

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likes to stand with its roots in the mud. If old pots are to be used, scald them well, and scrub them with strong soapsuds.

If you have never attempted the forcing of bulbs in winter, I would advise you to confine your selection for the first season to Hyacinths, Tulips, Narcissus, and the Bermuda Lily, more commonly known as the "Easter Lily," because it is so extensively forced for decorative purposes at Easter-time.

The above are not only the finest of all bulbs, so far as beauty is concerned, but they are surest to bloom, and will give excellent satisfaction under very ordinary treatment, if instructions are followed.

Of the Tulip, I would advise the early-flowering, single sorts. While not as showy, perhaps, as the double and later-flowering sorts, it is surer to bloom. In richness of color it is quite equal to any variety of this most extensive family.

Of the Hyacinths I would advise the single varieties of Holland growth, and the Romans. Double Holland Hyacinths will bloom quite as satisfactorily as the single kinds, but their flowers are so thickly set along the spike that they crowd each other until individuality seems



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lost. This, however, is simply a matter of taste, and as many persons prefer double to single flowers, they will be inclined to give preference to the kinds for which I have the least liking. They are really lovely flowers, only the single sorts, being smaller, and more loosely arranged along the stalk, are more graceful, and lack the formal appearance of the double varieties. Have some of each, and when they come into bloom you can make your choice between them.

Roman Hyacinths are somewhat unlike the Holland type in general habit. They send up four, five, often six stalks of bloom from each bulb, while the others seldom have more than one. Their flowers are less in number, and very loosely arranged along the stalk, and consequently they never crowd each other, and the general effect is far more graceful. We have perhaps no plant that enjoys greater popularity during the holiday season. Pots and baskets of them, wrapped in fancy paper, and tied with lovely ribbons, will be seen in great quantities in the windows of the florists, tempting the passer-by to invest in one of the loveliest gifts of the season. Their fragrance is as delicious as their flowers are lovely. Pink,

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yellow, and blue varieties are advertised by the dealers, but none of these colors are good. The white variety is the only one I would advise the amateur to select.

Few persons would be likely to make use of the Holland Hyacinths in general decorative work, but the Roman is well adapted for this purpose, and is extensively used in cut-flower work because it combines so charmingly with other flowers.

The Holland Hyacinths come in a wide variety of rich and delicate colors. There are some superb shades of pink, and rose and soft blue, and the carmines, and reds, and purples are equal to the task of making the windows in which they grow quite as gay as any Geraniums can.

Fine as are the Tulip and the Hyacinth, the Narcissus must be given a more prominent place on the list. Few flowers are more beautiful. Under the name of Daffodil some varieties have been popular ever since the old poets began to make mention of flowers. Shakespeare speaks of them in most friendly terms, and tells us of the flower:

“That comes before the swallows dare and take
The winds of march with beauty.”

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No window-garden can be considered complete if it does not include a few of the most prominent varieties. Among the best, for forcing, are:

PAPER WHITE.—Early and sweet.

TRUMPET MAJOR.—Yellow and white. Large. Superb in every way

VAN SION.—Rich, luminous yellow.—A most magnificent kind.

HORSFIELDII.—Golden yellow and creamy white. Perhaps the most popular of all. Anyway, a most lovely flower, and one you will never willingly be without after you have given it one season's trial.

A favorite flower of all lands is the Lily, and the variety we force so extensively, nowadays, is quite the peer of any, with its large, trumpet-shaped blossoms of purest waxen white and most exquisite fragrance. If I could have but two bulbs for winter use these two would be the Narcissus and the Lily. If I had to restrict my choice to one, I presume the Lily would be chosen; but I would have both, if possible. *Lilium candidum* is used to a considerable extent for forcing by the florists, also *L. longiflorum*, but for amateur culture neither of these is as desirable as *L. Harrisii*, which

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is the catalogue name of the variety usually known as the Easter Lily. This variety is almost sure to bloom if you procure good, strong bulbs and give them the right kind of treatment.

In potting Tulips, put the bulbs about an inch below the soil.

Treat the Narcissus in the same manner.

Hyacinths do best if only about half their depth in soil. Simply press them down into it.

I would advise putting four, five, or six bulbs of Tulip, Hyacinth and Narcissus into each pot, instead of potting them singly. A much finer effect is secured by massing them, than by giving each bulb a pot of its own. Four bulbs can be grown to entire satisfaction in a six-inch pot. Six or more in seven and eight-inch pots. It does not matter in the least if the bulbs touch each other.

Lilies, because of a somewhat peculiar habit of growth, demand a treatment quite different from either of the bulbs of which I have made mention above. It is a fact not generally understood by amateur gardeners, that they have two distinct sets of roots. One set is thrown out from the base of the bulb, the other from the stalk above the bulb. In order to give the

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upper set a chance to develop, it becomes necessary to plant the bulb low in the pot. Then, as the stalk shoots up, we can fill in about it with soil, into which the roots it sends out can penetrate, and find the support they need. Therefore, in potting Lilies put only three or four inches of soil into the pot at first. Settle the bulbs into it firmly. Then, after watering, put the plants into cold storage, to form roots, along with your other bulbs, and add no more soil until top-growth begins. Then, from time to time, as the stalk elongates, add soil until the pot is full.

I always put three or four bulbs of the Lily into each pot, using, generally, eight and nine-inch pots. These will easily accommodate the number of bulbs mentioned, if of ordinary size. Extra large bulbs will, of course, require larger pots, or fewer bulbs to a pot. It does not matter if the bulbs crowd each other.

After potting your bulbs, water them well.

Then set them away in a place that is cool, and dark, and leave them there until they have formed roots.

The advice in the above paragraph is of great importance. You can not afford to ignore it. Pot a bulb, and place it at once in the

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window, and root and top-growth will begin at the same time. Light and heat excite the latter prematurely. As there are, as yet, no roots to feed and support the top, the development of it will be weak, and attempts at flowering will generally prove abortive. Nature's method is always to develop roots first. These completed, top-growth sets in, and is successfully carried forward, because there is something to support it. We must aim to do, in this case, as nearly as possible what Nature does, and the first thing of all to do is to encourage the production of roots. This is why we place our potted bulbs in cold storage immediately after potting them. Away from light and heat, they do precisely what the bulbs we plant in the garden do in fall—form roots, without attempting any growth of top, at the time. After the period of root-formation is over, they will, under the influence of light and warmth, turn their attention to the second stage of their existence—the production of flowers.

Most bulbs will form roots in about six weeks. Be sure they have done so before you bring any of them to the windows. If the place in which they are stored has a temperature but little above the frost-mark—and such

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a place is better for them than a warmer one—top-growth will be slow in setting in, and they can be safely left there for some time after the completion of root-growth. Florists keep their potted bulbs in a low temperature to hold them back for Easter, and quickly force them into bloom with heat. Of course the amateur florist can not manage these things as the professional, with all the facilities of the trade at his command, can, but he can work along the same line, and *aim* to do what the other does. Quite often he will be delightfully surprised at his own success. It is well worth the amateur's while to *try his best* to do the things the professional does.

A succession of bloom can be secured by potting bulbs at intervals of ten days or two weeks.

Be sure to wrap those you hold in reserve for future plantings in thick paper to prevent light from getting to them, and keep them in a cool place.

It was formerly considered necessary to put potted bulbs in a place where they would freeze. But this theory of a very low temperature being necessary to the satisfactory development of working roots has been most effect-

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ually set aside of late years. Experience has proved that bulbs stored in a place that is cool and dark give quite as satisfactory results as those subjected to freezing conditions.

If you have a cellar, put them there. If you have no cellar, store them in an old shed, or an unused room—any place, will answer, if it can be made *dark* and kept *cool*.

If the bulbs are watered well at time of potting, they will not be likely to need watering again during their stay in cold storage, as evaporation, under the conditions which should prevail there, will take place very slowly. But to *make sure* of this, examine them occasionally, and if the soil seems quite dry, apply a moderate amount of water.

To ascertain the stage of root development invert a pot and turn out the ball of earth. (It may be well to water, before doing this, as the soil, if rather dry, will be likely to break apart.) If tiny white roots show in it, be satisfied that matters are progressing favorably.

If you find a plant that has begun to make top-growth, while yet in cold storage, bring it to the light at once. To leave it there after it has begun to send up leaves or a stalk, would be to run the risk of blasted flowers.

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Very frequently Hyacinths fail to satisfactorily develop their flower-stalks. You will discover a cluster of buds away down among the green leaves just unfolding, and there it will remain, day after day, evidently inclined to do its part, but unable, for some reason, to do so. As soon as you notice this tendency to stand still, make a cone of thick brown paper large enough to fit the top of the pot. Cut off about an inch of its apex, and invert it over the plant. Very shortly its desire to get to the light will cause it to reach up, and, an effort once made in this direction, the chances are that it will speedily develop.

In order to prolong the life of the flowers of your bulbs, keep them in a cool room, if possible, especially at night.

Sometimes aphides will literally cover the young growth of Tulip and Hyacinth. They will seem to come in a night. Where they come from, so suddenly, and in such numbers, you cannot imagine. But there they are, and something must be done, at once, to rout them before they have sapped your plants of their life-blood. Prepare an infusion of Nicotocide, as advised by the manufacturer, and wash the infested plants with it. It will be well to use a

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soft, camel's-hair brush, which can be worked down in among the tender leaves without injuring them.

The stalks of the Easter Lily should be given firm support as they develop. If this is not done, they frequently take on awkward shapes, and make anything but symmetrical plants.

A north window is much better for flowering bulbs, after they come into bloom, than a window where the sunshine is admitted freely.

The question is often asked: What shall we do with our bulbs after they have blossomed. Can they be carried over for another season's use?

To this I always reply: A bulb that has been forced into bloom in the house can never *be depended on* to give a good crop of flowers again, under similar conditions. They *may* do so, but the probabilities are that they will *not*, and we can not afford to take the chances of being disappointed by them. Therefore I would advise the purchase of fresh bulbs each season.

What sizes shall we get? I am often asked. I prefer large bulbs, because they generally give us a more generous crop of flowers than we are likely to get from the smaller ones.



PRIMROSES, PRIMULAS, AND FREESIAS



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Especially is this the case with the Bermuda Lily. Bulbs of only ordinary size seldom have more than three or four flowers, while the extra large bulbs often produce as many as twelve or fifteen flowers. Of course they cost considerably more, but I consider them well worth the difference in price.

If you purchase your bulbs of a local dealer, examine them before buying. If they feel firm, and seem heavy in the hand, they are good. But if they seem flabby, and lack the feeling of heaviness, don't invest in them.

There are other bulbs very satisfactory for winter use, and many of them can be grown with little trouble. The Freesia is one of the best of these. It is lovely in its glistening white purity, and deliciously sweet in fragrance. Put half a dozen or more bulbs in six-inch pots, in the compost advised for other bulbs, but do not put them into cold storage. Simply keep in some quiet place until growth begins, then give them a place near the glass.

The Ixia is becoming more popular as its merits become more generally known. Its flowers include many shades of yellow, pink, scarlet, and crimson.

The Crocus is a charming little thing. Put

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several bulbs into each pot. This comes in blue, purple, violet, yellow, and pure white, and many varieties are striped with contrasting colors.

The Scilla and Snowdrop add variety to the winter bulb-garden, and will be greatly enjoyed, because they are so suggestive of spring. But they, like the others mentioned above, lack the dignity of the Tulip, the Hyacinth, the Narcissus, and the Easter Lily. Therefore they will not be likely to afford the satisfaction which these leaders in the bulb-realm are sure to give.

XXXIII

VINES FOR HOUSE CULTURE



NE of the most popular plants, among amateurs, is *Asparagus Sprengeri*. This is perhaps not so much a vine, in the strict sense of the word, as it is a plant of drooping habit.

It sends out branches which often reach a length of six and seven feet. These branches put out side-branches, all along their length, and become a thick, heavy mass of foliage, of a bright, dark green. The leaflets being fine and slender, the general effect is one of graceful airiness. Few plants are of easier culture. It succeeds anywhere, under conditions that would discourage ordinary plants. This is one reason of its great popularity. A year-old plant makes a charming decoration for the wall if given a bracket to grow on. Its roots are tuberous in character, and are so freely produced that they soon fill the pot. If not

shifted to larger pots, they frequently break the old pot by pressure. The tuberous roots unite at a sort of fleshy crown, from which the new branches are sent out. By cutting this crown apart in such a manner as to secure an "eye," or growing point, with each division made, propagation is an easy matter. It will be found more satisfactory to grow new plants each season than to give old plants the large pots they would require to accommodate their roots. This *Asparagus* blooms profusely, at certain seasons. Its flowers are small, and not at all conspicuous, but they have a heavy, rich odor with a quality like that of the Cape Jasmine or Tuberose. They are followed by red berries which make the plant very attractive.

Asparagus plumosus nanus is a variety having foliage so fine and filmy that it looks like mist or lace in its delicacy. Its fronds are quite Fern-like in outline, and because of this the plant is often known as the *Asparagus Fern*. Young plants make exquisite decorations for table-use. Old plants have a tendency to develop what, in the young plant, is a frond, into a vine that often grows to a length of six, seven, or eight feet, twisting and twining about whatever it comes in contact with.

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These old plants are useful for window-decoration, but useless as table ornaments. They can be broken apart, in spring, and each bit of root with an "eye" attached can be made into a new plant.

To grow *Asparagus* well, give it soil of sandy loam, and depend upon fertilizers in its development rather than large quantities of soil. If the fronds on young plants exhibit a tendency to develop into vines, nip off the ends of them when they have reached the height of a foot. This will cause the side-branches to develop, thus giving the frond the breadth it needs to be most effective. A fine specimen of this variety of *Asparagus* makes a fine basis for table decoration, with cut flowers inserted between its fronds. I know of no plant with more dainty, graceful foliage, or more charming habit of growth. Few plants do better in the living-room. Shower it frequently to prevent the ravages of the red spider. Water moderately. Give fertilizer only when it is in growing condition. Keep it out of the sun.

The English Ivy is, all things considered, an almost ideal plant. It will stand hot air, dry temperature, and dust as few other plants will. Its foliage is beautiful in color and shape.

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When properly cared for, as it develops, it becomes a large plant which improves with age, often attaining a length of twenty or thirty feet, with many branches. It requires less light than any other plant I know of, and can be trained over the walls, along ceiling, and in other places away from direct light, without the injury that results to most other plants so treated. Because of its thick, leathery foliage it can be washed without the risk of harm, and therefore it is an easy matter to keep it clean, if its vines are not fastened to the wall in such a manner that removal is difficult. I would suggest inserting screw-hooks in the wall, over which the vines can be slipped. This facilitates easy and quick removal.

Scale is about the only enemy the Ivy has. Treat with the kerosene emulsion, for which a formula is given in the chapter on The Insect Enemies of Plants.

This Ivy can be propagated from cuttings rooted in water.

If a quick-growing vine is desired, and one that will grow to considerable length, the Constance Elliot Passion-Flower will give satisfaction. Feed well and shower frequently. Give plenty of sunshine.

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The Madeira Vine is excellent for training up about windows and over screens. This is grown from tubers. Plant in soil of rich sandy loam. This is a vine of very rapid growth, with thick glossy foliage.

Senecio marcoglossus, better known as German Ivy, is another fast-growing vine. It has foliage shaped like that of the English Ivy, but lacks the substance and rich coloring of that variety. Where quick results are desired it will be found a useful plant.

XXXIV

ROOM DECORATIONS



IF one has plenty of material at her disposal it is a comparatively easy matter to decorate a room with growing plants. (Here is another argument in favor of the plant-room.) But if one is limited as to plants a good deal of study is often necessary in order to arrange the material one has in such a manner that it will show to the best advantage, and not have that "thin" look which characterizes most decorative schemes worked out with a few plants. Such a decoration is worse than none at all, and I would advise not attempting it. It will be safer to depend on a few good plants so disposed about the room that their individual beauty will be effectively displayed.

Still, most women are ambitious to make their rooms as attractive as possible, at times, and on special occasions, and it is quite the

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natural thing for them to attempt doing something along the decorative line with what plants they have. It is of course impossible for me to give any definite plan in this book because I have no means of knowing what material any reader will have to work with, but I will offer some suggestions that may be of some assistance.

If you want a bank of plants, look your rooms over well and decide where such a scheme as you feel justified in undertaking would be most effective. Then take inventory of your plants with a view to deciding how ambitious a scheme you are warranted in attempting. A simple one, well worked out, will always afford more pleasure than an elaborate one in which scarcity of proper material will be only too evident.

Of course it is understood that the ordinary bank of flowers and plants is constructed on foundations built up from boxes, plant-stands—anything that will enable one to secure a sort of step or stair effect, the aim being to elevate the plants in such a manner as to make all of them above the pot visible. The ordinary plant-stand of wood or wire, arranged with three or four rows of shelves, will give

you the idea, if you are not familiar with this kind of work.

Begin with your best foliage plants at the bottom of your frame and work upward, using your best flowering plants in the center and at the top. If one has about as many foliage plants as flowering ones, alternate them, endeavoring to fill in the gaps between the latter with foliage in such a manner as to produce, as far as possible, a solid and substantial effect. If you have very few flowers it will be safest to concentrate them in the center of the bank, using your other plants to fill in about them and produce the effect of a background against which the flowers you have can display their beauty most effectively. Of course, as I have already said, I can simply suggest. It is for you to study the possibilities and evolve such a decorative scheme as seems most likely to give satisfaction. Make a trial of the several arrangements that suggest themselves to you before deciding on any. You can form a mental picture of your bank as you would like to have it, but you can only tell what *can be done* by experimenting with the plants available.

If there is a mantel in the room, and no fire in the grate, very pleasing effects can be se-



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cured with a few plants by concentrating them at this point.

Use your largest plants on the hearth. Place a tall one at one side to extend the greenery up to the mantel shelf. Then a vine to run across above the glass and droop at the opposite side. In this way you convey an impression of plants climbing from the hearth to the upper part of the mantel, on one side, crossing it, and dropping from that point as vines naturally would if growing there. At the place where the tall plant meets the pot containing the vine a flowering plant can be used effectively, or a few cut flowers can be made to give color to a scheme that might lack brightness without them.

If you have two rooms opening into each other with wide doors or an archway, and tall plants, like Palms, Ficus, or Abutilons are at your disposal, a very pleasing effect can be easily obtained by grouping these plants in the corners, on each side, and placing sofas, davenports, or something of that kind in front of them. A table can be used, if you have nothing better. If the plants are not tall enough to give the effect you have in mind elevate them on boxes or stands, but be careful not to

get their pots higher than the back of the sofa, or whatever stands in front of them. In other words, let nothing but the plant itself be seen. If the effect of height cannot be secured without bringing the pot into view, cover it with moss, or *Smilax*, or *Asparagus Sprengeeri*. Sometimes green cheese-cloth or tissue-paper can be used to advantage. Whatever is used should be arranged lightly and gracefully. It should hide all unsightliness without making itself unduly prominent. I know of no other plan in which a few tall plants can be made to do as effective duty. If one has a considerable number of plants they can be arranged in such a manner as to produce the impression of looking from one room to another through a vista of greenery and bloom, the doorway being hidden by them. Vines can be trained about the top or the branches of large plants can be extended from the sides and made to meet at the center.

Brackets for holding plants at any desired place on the wall cost but little, and can be put up without disfiguring the room. The best ones consist of a hoop of iron to which is attached a hook that drops into a socket. The pot drops into this hoop and is always held firmly by it. If flat brackets are used there is

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more or less danger of the pot being jarred from its place. The use of brackets in decorative work enables us to so dispose our plants on a flat surface that small ones can be made to do almost the work of larger ones.

The most useful plants for the decoration of rooms are Palms, in variety, Ficus, both plain-leaved and variegated, *Aspidistra*, Ferns in variety, *Anthericum*, Myrtle, *Aucuba*, *Oleander*, Ivy, the variegated *Abutilons*, *Callas*, some of the large-leaved *Begonias*, *Geraniums*—especially *Madame Salleroi*—and *Azaleas*, all of which can be easily grown in the plant-room, and most of which can be grown satisfactorily in the living-room if given proper care and treatment.

The hints given above can be modified to suit varying conditions, always keeping in mind the fact that simplicity should govern rather than a desire to produce a “striking” effect. These effects, as a general thing, are not artistic ones. Anything that has a tendency to attract attention by a tricky make-up should be avoided.

There is no good reason why the woman of the house should not do her own decorative work, thus becoming independent of the pro-

fessional, who will respond to her demand for service by decorating her parlor or table precisely as he decorated her friend's, last week. By the exercise of her own taste she can secure variety, originality, and save enough money to pay for extra flowers if she needs them.

The general principles mentioned in connection with home decoration can profitably be applied to the decoration of the church. If you have but few plants available, concentrate them about the altar or pulpit. If you have all you care to use, group some at each side, reserving the best for the most prominent places. A Palm at one side of the altar with a bank of Ferns across the foot of it, and a vase of choice flowers above, will be found a very simple arrangement that will always please.

There should always be a prominent point in all decorative schemes, and this can be brought out by the use of color, as in the vase of flowers on the pulpit desk. A fine effect can be produced by banking pulpit or altar with Ferns, against which a single plant of Azalea, or Easter Lily, or Genista will stand out beautifully distinct and vivid. Try this, and you will get a good idea of what satisfactory work can be done with a very small amount of ma-

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terial. It will convince you that success does not depend so much on what and how much you use as upon how you use it.

If you have a plant-room, it will be well worth your while to grow quite a number of bushy, low-growing plants to use as filling between the larger ones, in the working out of your decorative schemes. One of the very best plants for this purpose is the Madame Salleroi Geranium, with its green and white foliage, and round, compact habit of growth. Another excellent one is *Asparagus plumosus nanus*, with its dainty, graceful, feathery foliage. This is particularly useful in forming backgrounds for flowers of brilliant color. Large plants of English Ivy are invaluable for decorative work, as they can be used on the walls, about doors and windows—anywhere and everywhere in fact—in almost every scheme you may evolve.

XXXV

THE KNACK OF BOUQUET-
MAKING



OMETIMES I cannot help thinking that the successful bouquet-maker is, like the poet, born, not made. It is true that one may so educate the eye for color that combinations may be made which are along the line of harmony, but the knack of making a thoroughly pleasing bouquet does not consist in simply putting together harmonious colors. There is a *something* hardly tangible enough to put into words, but that something we must attain in order to achieve success. It is that something which constitutes the wide difference between the born bouquet-maker and the bouquet-maker who is made. It may be as indefinable as the idea of what constitutes real poetry, but its presence or its absence is felt and recognized universally. If I were to attempt a definition

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of it I think I would call it a natural intuitive taste—one which, by some unwritten law, makes no mistakes, as the cultivated or acquired taste is quite likely to do. We see something similar to it in the woman who has the knack of making herself look a hundredfold more attractive in a calico dress of simple pattern, neatly fitted and made, than many women look when clad in costly silk.

It may be inferred from what I have said that I would confine bouquet-making to those who have a natural taste for it. Not so. I would have every woman cultivate her ability in this direction, for I know of nothing which affords more pleasure to the lover of flowers than arranging them for the decoration of the home.

Of course it is impossible to lay down any definite instructions as to what must be done in order to insure success, because conditions are always variable, and it is not an easy matter to put into words impressions largely the outgrowth of intuition. But some general advice can be given which will be helpful to the woman who would attempt to arrange flowers but is doubtful of her ability to do good work.

To begin with, I want to say that simplicity

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should be one of the things never to lose sight of; in other words aim to make your arrangements as natural as possible, and, in order to do this, take object-lessons from Nature. Go out into the garden and field, and make note of what you see there. Here is a Wild Rose bush. Study it carefully. There is no crowding, no formality, no torturing of its branches into unnatural positions. Everything about it is as simple, as natural, as Nature herself. In fact, it *is* Nature. Here is a mass of the white-flowering Elder. See how it curves gracefully in all directions under the weight of its lace-like clusters of bloom. There is not a stiff stalk about it. It is all curves—all grace. Straighten up one of its stalks and force it to assume and maintain an upright position and observe the result. The freedom, the grace, of the bush is destroyed because you have forced it to take on a shape that no Elder ever grew in when left to follow out its own devices. Therefore, before arranging any flowers in vases or in bouquets be sure you know how they appear when growing without any interference with their natural tendencies, and be governed by that knowledge. This means close observation and a willingness to learn

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from the teacher who makes no mistakes. Imitate as well as you can the simplicity of naturalness. I do not mean by this that you should attempt to copy Nature in a servile way but that your work should be along natural lines instead of artificial ones.

We make a serious mistake in thinking that a good deal of material is needed. We crowd a good many flowers together and wonder that the effect is not more pleasing. The colors harmonize, perhaps, but something spoils the effect we had in mind. What is it? In nine cases out of ten the failure comes because we have destroyed the individuality of the flowers we have made use of. We have not given them enough elbow-room. A group of persons on a lawn may be a very picturesque and pleasing feature of the scene, because we see the peculiarities of each person in the group. But add a large number of persons to it and the group becomes a crowd and some of the features that attracted us, at first, are lost sight of. There is no longer any individuality. It is precisely so in the arrangement of flowers when we use more than are needed to produce an artistic effect. A few, intelligently used, can be made extremely effective. The artist

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who paints a flower-picture does not crowd his canvas, still it glows with color, and the impression it gives you, at first sight, is that he has depicted a wealth of bloom. But a careful analysis of the pictures will show you that he has secured the result he aimed at by painting a few flowers so arranged that each one has a chance to assert its individuality to the utmost. Then you begin to understand that quantity is not so important as quality in work of this kind, and you learn that what the artist has done in arranging his flowers on the canvas is precisely what you must do in arranging yours for the decoration of the home. All the difference is—his are on canvas, yours are in a vase. The same rule applies to both.

Aim *to make a picture* of each arrangement you undertake. Think how it would look on the wall if it could be perpetuated by the brush of the artist. If you do not think you would care to have it so perpetuated there is something wrong with it. Find out what it is that is wrong before you go on with your work.

The use of several kinds of flowers is often as great a source of disappointment as the use of too many. There may be harmony of color but not of form or habit. A pink Rose and a

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white Dahlia are harmonious so far as mere color goes, and the contrast may be exceptionally fine, but such a combination is not pleasing because there is an utter lack of harmony in the habit of the two flowers. If two are used, one must be content to play a subordinate part by serving as a foil to the other, thus heightening and emphasizing its beauty by contrast. Use a spray of wild Clematis with Roses and the effect is delightful, because the white of the Clematis brings out the color of the Roses vividly, but it, in itself, is unobtrusive. It is a background accessory in the composition of the picture. Its part may be a secondary one, and yet it is absolutely necessary that it should play it in order to bring out the full beauty and meaning of your picture. But were you to substitute a Lily for the Clematis you would find the effect much less pleasing because there would be instant rivalry for supremacy between Rose and Lily. Neither would consent to occupy a subordinate position. In fact, neither could do so, if inclined to, because of the equal prominence of both flowers. Therefore learn from this the wisdom of not attempting to combine flowers of equal or comparative importance. Sweet Peas are delightful

THE KNACK OF

for bouquets, by themselves, but I can not think of any flower that can be used with them without seriously detracting from their beauty. It is the same with Nasturtiums and Pansies. Put them in the same vase and the effect is positively painful to the eye that is sensitive to artistic effect.

If I were to arrange a vase of Sweet Peas for the table, I would go into the garden and cut the flowers with the longest possible stems. I would bunch them lightly in my hand as I cut them, without trying to produce an effect at this stage of proceedings. The effect is to come later. I would not cut more than a dozen clusters unless the vase I intended to make use of was a large one. Then I would drop them into the vase, give it a little shake, and lo! the blossoms have arranged themselves far more satisfactorily, far more artistically, than I could have done it if I had put them deliberately together, because they have disposed themselves simply and naturally.

Formality and artificiality in the making of bouquets are fatal to artistic work because they are the opposites of simplicity and naturalness. Remember that. Prove the truth of it by experimenting.

BOUQUET-MAKING

The vessel in which you put your flowers has much to do with the result. For such flowers as the Sweet Pea I prefer a rather tall and slender vase, preferably of clear glass, at any rate one of unobtrusive color. Lilies are at their best in tall vases. So are Roses if cut with long stalks. But these flowers can be used in bowls very effectively. Flowers with short stems, like the Pansy, must be given shallow vessels. Imagine a Pansy in a tall vase!

Color must also be taken into consideration in this connection. A blue China bowl may be pleasing when used with yellow Roses or golden Daffodils, but put pink Roses or purple Dahlias into it and the result is a jarring color-discord. As a general thing a crystal vase or a cut-glass bowl will be found more satisfactory than any colored vessel, because, where these are used, there can be no clash of color—no striving for predominance in tone between the flowers and the vessels that contain them. Where colored vessels are used great care must be taken to secure perfect harmony as well as contrast, otherwise the effect will be disastrous in the extreme.

XXXVI

THE PARLOR FERNERY



ERNS, as we all know, are more difficult to grow than many other plants, but this does not prevent the lover of fine plants from *wishing* she could grow them. The question is often asked, "Isn't there *some* in which I could make a success? I wouldn't mind expense or trouble if I could have one really good Fern."

There is but one solution for this difficulty in the home where these plants fail to do well in the window, and that is the fernery, or fern-case.

The fern-case is, to all intents and purposes, a miniature greenhouse in which the air can be kept at almost any desired degree of moisture. The hot, dry air of the room is shut out, and the humid atmosphere within makes it possible to grow many plants which could not be grown outside such an enclosure, in the ordinary living-room.

THE PARLOR FERNERY

Ferneries will be found on sale at most seed stores and among the plant dealers. These as a general thing, consist of an iron frame with glass sides and top, covering a pan filled with soil in which the plants are grown. They are, as a usual thing, so small that one good-sized plant will fill them, and therefore the person who is fond of variety would not be likely to be satisfied with them. Such a fernery, however, makes a charming ornament for the parlor if it contains but one good specimen of some beautiful Fern, with a carpet of feathery *Lycopodium* covering the soil about it. Half a dozen small plants can be grown in a case twelve by eighteen in size but one large plant will be more satisfactory.

In buying a case in which to grow a Fern of upright habit, be sure to get one that is high enough to admit of full development without the plant coming in contact with the glass of the top. Moisture will condense there, and if the delicate fronds are obliged to touch the wet glass and remain against it, they will soon blacken and decay.

In filling a fernery, be sure that your soil is very light and spongy. If full of fine, fibrous roots, all the better. It is absolutely necessary

THE PARLOR

that no heavy soil, likely to become compact under the application of water, should be used. Put about an inch of charcoal in the bottom of the pan to act as drainage, and help to keep the soil sweet. Over this spread the soil to the depth allowable by the size of the pan, heaping it somewhat in the center. Into this set whatever plant you have selected for the center, and plant bits of *Lycopodium*, with tiny roots attached, about it. These can be secured by breaking apart an old plant. They will soon begin to grow, and in a short time the soil will be entirely covered with a network of green, vine-like branches, quite as dainty and delicate as those of the rarest Fern. While *Lycopodiums* are not Ferns, they have many of their peculiarities, and are quite as attractive, on a small scale.

Small Palms, like *Cocos Weddelliana*, will flourish in the fernery. So will some of the Begonias, like *Weltoniensis* and *Washingtoniana*, and fine specimens of the Rex section can be grown there if not kept too moist at the roots. Among the Maidenhair Ferns, *cuneatum* will be found most useful. Ferns having long and spreading fronds, like those of the *Nephrolepis* and *Pteris* class, soon become too

FERNERY

large for ferneries of ordinary size, and they lose their beauty as soon as obliged to crowd against the glass.

Great care must be taken in watering a fernery. Because of the constant evaporation which is taking place, there will be constant condensation on the glass, and this moisture will run down and return to the soil, unless the top of the fernery is kept open. It is impossible to lay down any definite rule for watering, but I would give this general one: Give more water only when there seems a prospect of the soil becoming dryer than leaf-mold usually is as we find it in the woods.

It is well to lift the cover of the fernery an inch or two, every day, to allow surplus moisture to pass off. Leave it open for an hour or two.

The most satisfactory of all ferneries for the parlor or living-room is one that is made to fit the window. Any carpenter—in fact, any man who is “handy with tools”—can make it. It is simply an enclosure of a space two feet, or thereabouts, in depth in front of the window at which you locate it. Stout iron brackets should be fastened to the lower part of the window-sill to furnish the necessary support.

THE PARLOR

Measure off pieces for the top and bottom of a length corresponding to the width of the window, from casing to casing. For the sides, have pieces as long as the window is high. When the sides and ends are put together, you will have a box without a bottom, just the size of the window-frame. This is to be fitted snugly against the frame, and fastened there securely. The front of the box is to be fitted with glass doors, hinged at the sides to admit of their opening in the middle. Have the glass in these doors as large as possible, so that as little as possible of the interior of the case will be hidden. Half-way up the window a shelf can be thrown across, if thought desirable, but the best pictorial effect is secured by omitting shelves, as they not only obstruct the upward growth of a tall plant, but detract from the appearance of the window, as pots on them will be so conspicuous as to prove annoying to the eye, though vines can be trained over them in such a manner as to hide their unsightliness to a great degree. A much more satisfactory effect is secured by leaving out the shelf, or shelves, and giving up the entire center of the window to a plant tall enough to reach almost to its top. Train vines up the sides to hide the interior of

FERNERY

the case under a tracery of delicate greenery, and plant low-growing plants about the base of the large plant, which may be a Palm, a *Dra-cena*, a Boston Fern, or an *Asparagus plumosus nanus*. In winter a *Calla* will flourish there, and *Primula obconica* can be planted about it thickly, and made to cover the soil with its pretty foliage, above which its starry flowers will show to fine effect. In fact, almost any moisture-loving plant can be grown in a case of this kind, for the air inside it will not be as close as that inside the little ferneries made of iron and glass. Mosses from the woods, wild Ferns, Checkerberry and Prince's Pine will live for a long time in it, and often they will flourish in it as well as any of the plants obtained from the greenhouse. This will quite likely be the case if you lift them with a good deal of native soil adhering to their roots and plant them before it has a chance to become dry.

XXXVII

THE AMATEUR GARDENER'S IMPLEMENT OUTFIT



IN order to facilitate work among her plants, and lighten the labor of caring for them as much as possible, every amateur gardener ought to provide herself with a watering-pot, spray-pump, florist's syringe, and a stiff-bristled scrubbing-brush. Also, a thermometer. There will be other things to add from time to time, but these are the important ones that will come into daily use, and without which a good deal of unnecessary work will have to be done.

The ordinary watering-pot does not have a very long spout when it comes from the store. I would advise taking it to the tin-smith and have an extension added to the original spout, making one, when this is done, at least two feet in length. This will enable you to apply



ASTILBE

IMPLEMENT OUTFIT

water easily to plants standing in the rear of others, that could not be reached effectively with a short-spouted pot. Give one with a long spout a trial and you will never be satisfied with the old kind. In buying a pot, you will find it economy to invest in one of galvanized iron. This will not rust like the ordinary tin pot. It will outlast three of that kind, and therefore prove considerably cheaper in the end.

A spray-pump ought to be in every amateur gardener's outfit. With it, the work of showering one's plants is an easy operation, and it can be done much more effectively than in any other way. These pumps are light, but strongly made, and are of such easy operation that a child can use them. The plunger is worked with one hand, while the hose is guided by the other. The pump itself is dropped into a pail of water; a clamp on the outside, resting on the floor, enables one to hold it firmly in place, under the foot, while you are operating it. The nozzle can be regulated to throw a mist-like spray, or a stream, and the hose enables you to work up under plants, in corners, and anywhere that water is needed, with perfect ease. You will find use for such a pump every day. It is well worth while to have one for the

THE AMATEUR GARDENER'S

application of insecticides if one had no other use for it. These pumps are of brass, so substantially made that they will last a life-time. The hose will wear out in time, but it can be replaced at slight expense. Beyond this the cost of repairs will be next to nothing. A pump of this kind will prove useful in many ways outside the plant-room and the window-garden. Never depend on rubber atomizers, or little, cheap hand-sprayers for use among your plants, if you want to do effective work there. A florist's syringe will not be needed for regular use among plants when one is the owner of a spray-pump, but it will come in play to most excellent advantage in the use of insecticides, where it is not necessary to make a general application. By its use whatever remedy is advisable can be applied directly to the plant needing it, without interfering with others. Like the pump advised, a good brass syringe will last a life-time. It will be found especially useful in the preparation of emulsions, which require rapid agitation in order to secure a perfect union of the materials used. Insert the nozzle of the syringe into the liquids, operate the plunger rapidly, and there will be speedy results of a most satisfactory nature.

IMPLEMENT OUTFIT

A stiff brush will be needed in scrubbing pots, one stiff enough to make it possible to reach every portion of the pot with equal force, thus removing the slime that is sure to gather on the outside after a little, and to keep everything clean and healthy. Simply *washing* a pot does very little good. Force must be applied in order to loosen and get rid of the exudations through its pores, in which the germs of disease often lurk.

If you prepare your own potting-soil, you will need a hoe, a spade, an iron-toothed rake, and a wheel-barrow.

The best hoe is one called the Warren, V-shaped, with handle in the center of the blade. The pointed part of it will be found much more effective, in most work, than the wide blade. With it, it is an easy matter to lift, shave, and pulverize sod and other soils that enter into the make-up of a compost for pot-plants.

Your spade should have a thin, sharp blade—one that will enable you to cut through roots easily, and work close to plants that must be lifted and potted without breaking apart the soil,—a result almost sure to happen where the ordinary clumsy tool is used.

IMPLEMENT OUTFIT

The iron-toothed rake will be found extremely effective in working over the compost. It will pulverize it, remove roots and other refuse matter, and stir things up generally as no other tool will.

Let the wheelbarrow be light, but strong, and make sure that it runs easily and smoothly in its bearings. It should have removable sideboards, to facilitate the dumping of soil.

Other tools can be added, from time to time, as one comes across them at the dealer's. They may not be really *needed*, but if they are practical, and labor can be lightened or expedited by the use of them, it is well to have them.

XXXVIII

HINTS AND SUGGESTIONS



THE amateur gardener should always keep a few pots on hand of the various sizes most likely to be useful. There will be break-ages, old pots will be out-grown, newly started plants will have to be provided with pots of their own, and if none are at hand when needed, our plants frequently suffer because of our lack of forethought.

* * * * *

Lay in a stock of potting-soil for winter use. It may not be needed. If it is not, no harm is done, for it will come in play next spring. If you *do* happen to have need of it, you will be glad that you looked ahead and provided for possible emergencies.

* * * * *

It is often an exceedingly difficult matter for the amateur to secure satisfactory potting-soil. She can make a compost that will grow

excellent plants by saving up the odds and ends that can be procured about the home-grounds. Rake up the grass-clippings from the lawn, and dump them into a corner. Add to them bits of sward, grass and all. Pour the soapsuds of washing-day over them, and stir them thoroughly with the iron-toothed rake, from time to time. Add good loam to the heap, whenever you happen to find any. Rake up the leaves in fall, and work them into the mixture. Frequent stirrings will be necessary to make the compost alike throughout. It will take some months to make good, useable soil of it, but the time will come when you will find it just the thing needed by your plants. It gives one a feeling of satisfaction to know that she has a generous supply of good potting-soil in reserve, against times of need.

* * * * *

Never allow seed to develop on the plants in the window. Cut off all flowers as they fade, and throw the strength of the plant into the production of other flowers, rather than waste it in perfecting seed for which you have no use.

* * * * *

Keep all dead and dying leaves picked off your plants. Burn them as gathered. If this

SUGGESTIONS

is done, you often prevent the spread of disease. A plant is never pleasant to look at while unsightly leaves remain upon it, or litter the soil in its pot.

* * * * *

Many persons, for the sake of economizing space, attempt to grow miscellaneous collections of plants in large boxes. This method answers well enough for boxes outside the window, in summer, but it is never satisfactory inside, in winter. Not all the plants in such a collection will be likely to require the same treatment, but all of them will have to get along with it. The result is generally disappointing. I would advise keeping your plants in pots by themselves. Do this and you can give each one the care it needs, independently of others.

* * * * *

Many amateurs make the serious mistake of overcrowding their windows with plants. They want to grow everything in a limited amount of space. Do not attempt this if you want fine plants. Have only as many as you can grow without crowding. Any plant that has an individuality of its own must have ample room to develop and display that in-

HINTS AND

dividuality, in order to be satisfactory. Therefore, consider quality as more important than quantity. A few really good plants will afford you a vast amount of pleasure. A good many inferior ones will make you wonder, sometimes, if plant-growing is worth while.

* * * * *

Here is a formula for an excellent fertilizer that can be prepared at home: Nitrate of soda, 1 pound; Phosphate soda, 1 pound; Sulphate potash, 1 pound. Mix thoroughly. Use a tablespoonful in a gallon of warm water. Do not apply more than half a pint to an eight or nine-inch pot at a time. Use only when the soil in the pot is moist. Do not allow the solution to come in contact with the foliage.

* * * * *

Growing plants, used as table decorations, should never be kept away from the light long at a time, if you expect them to remain healthy. It is an excellent plan to have quite a number of them, and make a change daily.

* * * * *

If it becomes necessary to make use of an oil-stove in heating a plant-room in spells of severely cold weather, be sure to get a kind that does not smoke when turned up high



TABLE DECORATION OF GROWING PLANTS

SUGGESTIONS

enough to give a good flame. It is well to put a pailful of water on top of the stove, at night. This will give off steam enough to keep the air moist, and it will materially assist in keeping up warmth.

* * * * *

There should be a step-ladder wherever plants are grown. And there should be a thermometer, to be frequently consulted, and never ignored.

* * * * *

If you want your house-plants to make a fine show from the street, do not turn them, but let them all grow toward the glass. But the woman who loves flowers, and desires to get the most pleasure possible from them will be more concerned in having them attractive from the inside point of view. We should grow them for the pleasure of the family, rather than the admiration of the passer-by.

* * * * *

A frost-proof closet is a good place to keep Tuberous Begonias and Gloxinias, if you haven't a better place for them.

* * * * *

Do not invest in every new plant you happen to see, and admire, until you know something

HINTS AND

about its requirements. The florist will tell you what kind of treatment it needs, if you ask him. If it is a treatment you can not give, forego your inclinations in the matter, and concentrate your money and your attention on plants adapted to the conditions which prevail in the home.

* * * * *

When you prune your plants, never throw away anything that can be made into a good cutting. If you have no sand-box in which to start it, insert it in the soil of the pot in which the plant from which it was taken is growing. Nine times out of ten you will be successful in propagating plants in this manner. If you do not need another plant of that variety for your own collection, some flower-loving friend will always be glad to get it. Or you can grow it on until summer and give it a place in the garden. A better plan, however, is to distribute the plants among the poor children of the neighborhood, with instructions as to how to grow them.

* * * * *

It is not enough to see that our plants are kept clean and free from insects. The walls and benches of the places in which they are

SUGGESTIONS

kept should be gone over carefully from time to time. Insects will be found lurking in cracks and crevices, waiting an opportunity to make a raid upon the plants from which you may have driven them. Especially is this true of the mealy-bug, which is often found in great numbers in nooks and corners not frequently interfered with. It is a good plan to move all the plants away from the window and thoroughly scrub every portion of the walls and wood-work, at least once a month.

* * * * *

Do not encourage the plant-beggar. There are always persons in every neighborhood who will not hesitate to ask you to mutilate your choicest plants by giving them cuttings from them. If there happens to be one that can be spared without injury to the plant, give it, but never do so if it will interfere in any way with its satisfactory appearance or development. It may require quite a little effort on your part to say no, but that is the thing you ought to say if you grow plants for the pleasure they can give. Complaints frequently come to me of plants that never get a chance to do anything for the owner because every new branch is spoken for as soon as it appears by some per-

HINTS AND SUGGESTIONS

son who could well afford to buy her own plants. These are the persons to say no to.

* * * * *

We often see entire collections made up of inferior plants—plants that have very little merit—but which call for just as much attention as better plants would require. Nowadays superior varieties can be bought so cheaply that the woman who loves fine flowers can not afford to waste her time and energy on anything but the best. Whenever you buy a new plant, make sure of its being a good one. By adding really meritorious varieties to your collection from time to time, and discarding old and comparatively worthless ones, you will soon have a collection to be proud of. Then you will wonder how you could ever have been satisfied with the old one. Here, you see, is a practical application of the theory of the “survival of the fittest.”

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